GRANULAR AGGREGATE RESOURCES OF FOSTERVILLE (21 G/13), AND CANTERBURY (21 G/14)

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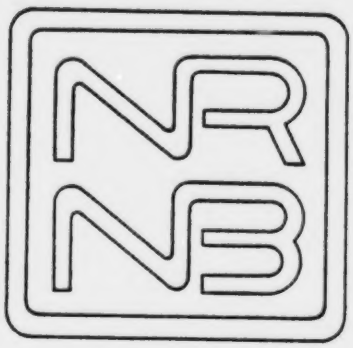

Mineral Resources Division
Department of Natural Resources
New Brunswick

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ABSTRACT

This report provides an inventory and evaluation of the distribution, extent, thickness and quality characteristics of granular aggregate deposits in the map-area covered by two 1:50,000 N.T.S. mapsheets: Fosterville (21 G/13) and Canterbury (21 G/14). Units of granular aggregate were mapped and comments made as to their origin. Sampling was carried out to determine the quality of the materials and estimates of recoverable reserves were calculated for most of the aggregate sources.

The major sources of aggregate are five esker systems (ice-contact deposits): the Eel River, Canterbury, Little Pokiok - Magaguadavic, Magundy - Harvey and Mactaquac. Quality of materials vary from esker to esker; total combined reserves are estimated to be 170×10^6 m^3. Other sources of aggregate are located in glaciofluvial and ice-contact terraces in the Saint John River valley.

RÉSUME

Ce rapport décrit la nature, l'étendue, l'épaisseur et la qualité des dépôts granulaires de le région couverte par deux cartes du Système Topographique National, à une échelle de 1:50,000: Fosterville (21 G/13) et Canterbury (21 G/14). Les unités de dépôts granulaires ont été cartographiées selon leur mode de déposition. L'échantillonage a permis de déterminer la qualité des dépôts. Une évaluation des quantités exploitables a été faite pour la plupart des sources d'agrégat.

Cinq complexes d'eskers constituent la principale source d'agrégat de cette région: ce sont les eskers de la rivière Eel, Canterbury, Little Pokiok-Magaguadavic, Magundy-Harvey et Mactaquac. La qualité des matériaux varie d'un esker à l'autre; les réserves totales ont été évaluées à 170 x 10^6 m^3. D'autres sources en agrégat se trouvent dans les terrasses fluvioglaciaires et de contact glaciaire de la vallée de la rivière Saint John.

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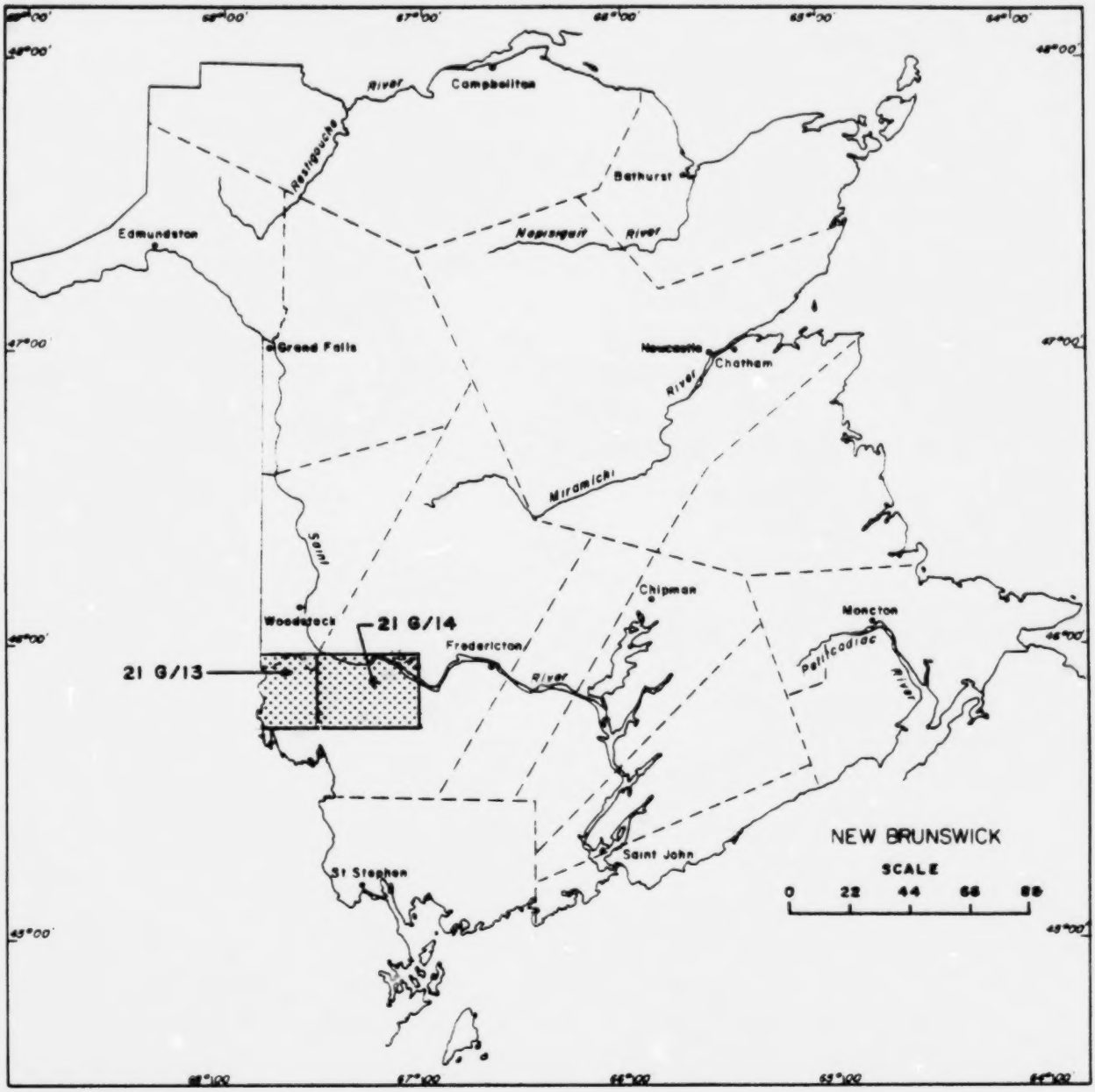

Figure 1

Location Of Study Area

INTRODUCTION

1.1 Location

The study area is located south of the Saint John River Valley (Figure 1) and covers 1680 km^2. It is bounded by latitudes 46°00' N and 45°45' N and longitude 67°00' W and approximately 67°50' W, the Canada-USA border.

Mapping was carried out at a scale of 1:50,000 using two N.T.S. map-sheets: Fosterville (21 G/13) and Canterbury (21 G/14).

Meductic and Canterbury are the only sizeable communities within the map-area.

1.2 Access

The map-area is crossed by the Trans Canada Highway 2, secondary highway 122 and local highways 630, 635, 363 and 540. Most coverage is provided by all-weather gravel roads and some unused backroads.

At present there is no road access into the south-central portion of the Canterbury mapsheet. However, no major granular deposits are suspected other than those already mapped and described.

1.3 Present Study

Geocon Inc. was retained by the Mineral Resources Division of the New Brunswick Department of Natural Resources to carry out a granular aggregate resource inventory of the Fosterville and Canterbury mapsheets as part of a province-wide survey program.

The aim of this study is to provide basic information on the distribution, extent, thickness and quality characteristics of granular aggregate deposits in the map-area. Previously published information was consulted and unpublished information was obtained from the New Brunswick Department

of Transportation and the Water Resources Branch of the provincial Department of Environment. Fieldwork involved examination of natural and man-made exposures and was supplemented by aerial photograph interpretation. Reserve estimates are based on field observations.

1.4 Duration of the Study

Field investigations for this map-area were conducted from mid-September to early October, 1981 as part of a larger contract covering four study areas totalling twelve mapsheets. The field program for all four areas was carried out by two field teams of two personnel each from mid-summer to early fall. Laboratory and office studies involved in the preparation of these reports were undertaken concurrently during the fall of 1981.

1.5 Previous Work

Early references to the surficial geology of the area were made by Chalmers (1884) around the turn of the century. More recent work by Lee (1962), Hamilton (1973) and Gadd (1973) deal with the glacial history in a more modern context. Gadd (1973) produced a paper and maps which provide a regional setting for the Quaternary geology of southwest New Brunswick at 1:250,000 scale.

Hamilton (1973) compiled a map showing the granular aggregate resources in New Brunswick. Since then, as part of an ongoing province-wide survey, granular aggregate inventories have been completed in the neighbouring Woodstock-Millville map-areas at 1:50,000 scale (Finamore, 1981).

Bedrock geology used in this report was obtained from the provincial bedrock map compiled by Potter et. al. (1979).

PHYSIOGRAPHY

2.1 Topography

The study area lies within a division of the Appalachian physiographic region (Figure 2): the New Brunswick Highlands (Bostock, 1970). Hills are rounded and range from 240 m to 300 m a.s.l. with a maximum elevation of 350 m a.s.l. Between the ranges of hills are broad basins containing large shallow lakes or extensive swampy areas. A lowland in the Lake George area is about 150 m a.s.l.

Local relief is highest in the west (90 m to 120 m) and becomes less toward the southeast corner (40 m to 80 m). Within the Saint John River valley, local relief is exaggerated (140 m to 190 m) as a result of the river's deep incision into bedrock.

2.2 Drainage

Drainage in most of the map-area is deranged, characteristic of a recently glaciated landscape. This is particularly noticeable in the northwest and southeast corners of the study area where extensive poorly drained swampy terrain is present. The Shogomoc and Pokiok Rivers drain additional swampy areas.

The Saint John and Eel Rivers are the only well-developed drainage systems in the map-area, being incised deeply in the bedrock.

2.3 Bedrock Geology

A geological map of New Brunswick has been compiled in 1979 by Potter, Hamilton and Davies.

The authors indicate that the central part of the study area is underlain by igneous rocks of Devonian age: granite, quartz monzonite, granodiorite and related rocks. An occurrence of Pennsylvanian sediments is

shown in the Prince William area. The remaining northwest and southeast portions are underlain by Silurian sedimentary and minor volcanic rocks, with the exception of a wedge of mainly Ordovician sedimentary rocks and mafic volcanic flows in the Maxwell - Kirkland - Benton - Meductic area.

2.4 Glacial Geology

During the late Wisconsin, ice covered all of New Brunswick. The map-area, in western central New Brunswick, was affected by glacial ice originating to the northwest (Gadd, 1973). Two phases of deglaciation in this area have been recognized by Gadd, in the relatively normal northward retreat of the ice sheet. This topic has been discussed more fully in Gadd's report covering the map-area.

No evidence of earlier glaciations has been found in the map-area (Gadd, 1973). The most recent events of the late Wisconsin are assumed to be responsible for the present day character and distribution of landforms and surficial materials.

Most of the surficial materials in the map-area consist of glacial drift which is deposited: (1) directly as a result of glacial activity, and includes types of moraine (basal and ablation till), and (2) by the action of meltwaters, which includes stratified drift (ice-contact and glaciofluvial sediments). Postglacial erosion of glacial drift, particularly in the Saint John River valley, resulted in the formation of alluvial deposits (floodplains and terraces) (Lee, 1962). All of these and some of the meltwater deposits in this valley have been subsequently flooded by the waters impounded behind the Mactaquac dam (elev. 40 m a.s.l.).

Of interest to this study was the nature and extent of materials suitable for aggregate. Glacial outwash and Ice contact meltwater deposits are considered to be the best sources of this commodity.

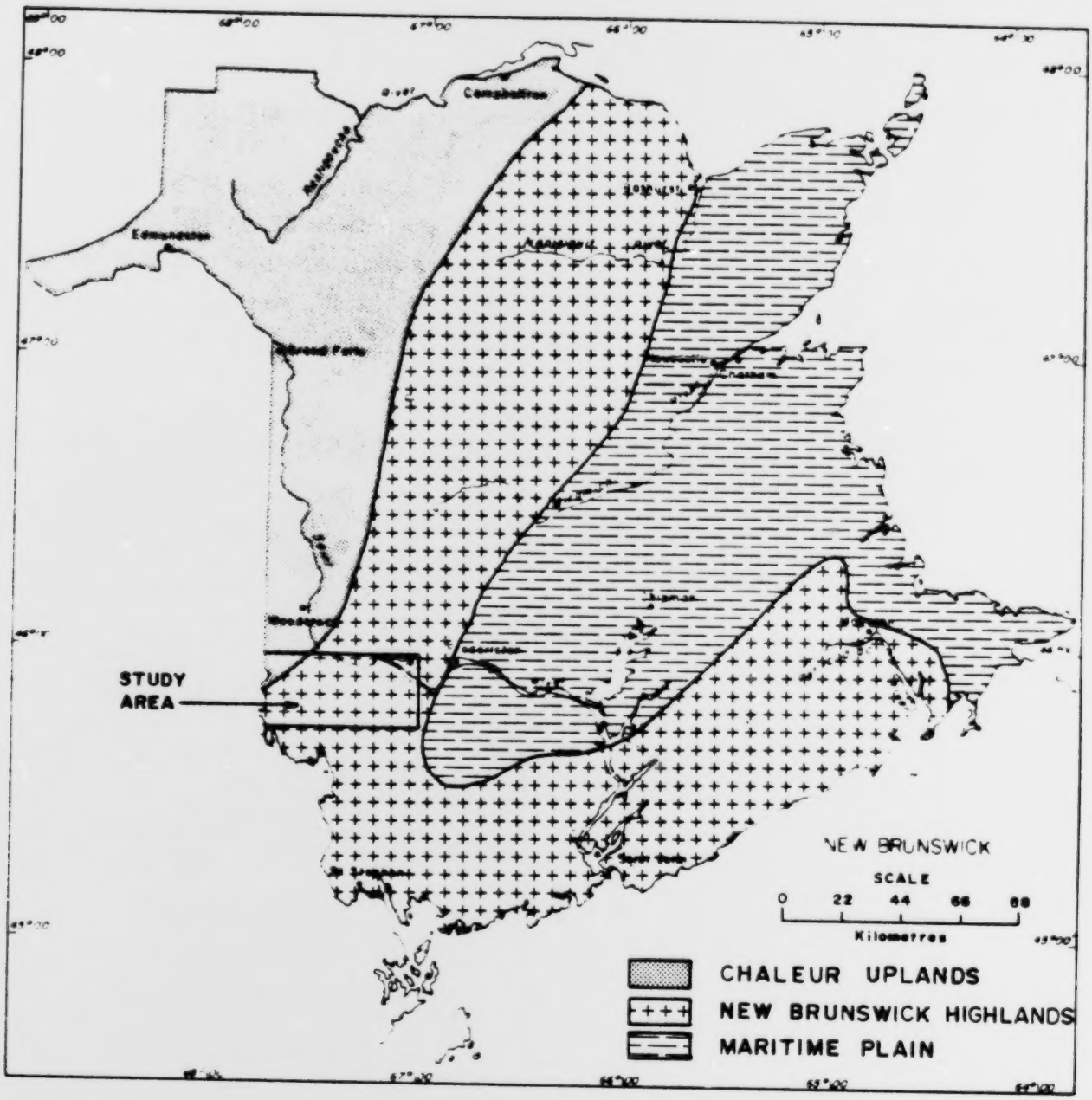

Figure 2
Physiographic Subdivisions Of New Brunswick

AGGREGATE RESOURCES

3.1 Classification of Materials

Unconsolidated materials are initially separated according to their origin or the way in which they are formed. They may then be subdivided according to their characteristics such as texture, surface expression and modifying processes. In this report, granular materials have been presented in such a way as to reflect their origin or mode of formation and their texture.

Four genetic materials have been identified as potential sources of granular aggregate. They are (1) alluvium, (2) glaciofluvial deposits, (3) ice-contact deposits, and (4) ablation till. These are described more fully in the following section (3.2).

Texture refers to the size, roundness and sorting of particles in unconsolidated sediments. Roundness and sorting are self-explanatory. Particle size distribution is based on a slightly modified version of the Unified Soil Classification System. The following table provides the details.

TABLE 1

General Term	Specific Term	Particle Diameter	Sieve Sizes
Fines	Clay	Less than 0.002 mm	--
	Silt	0.002 to 0.075 mm	0.002 mm to #200
Sand	Sand	0.075 to 4.75 mm	#200 to #4
Gravel	Pebbles	4.75 to 75 mm	#4 to 75 mm
	Cobbles	75 to 200 mm	75 mm to 200 mm
	Boulders	Larger than 200 mm	Over 200 mm

3.2 Description of Materials and Aggregate Production Potential

3.21 Alluvium

Alluvial materials are transported and deposited by streams and rivers. Sediment is transported in two ways. Fine sand, silt and clay particles are carried in suspension while sand, pebbles and larger clasts are rolled and bounced along the river bed. Deposition occurs when the sediment load exceeds the transport capability of the flowing water. This commonly occurs where there is a decrease in stream gradient or where a constricted channel emerges into an unconstricted relatively broad area.

Alluvial materials consist of well sorted and bedded gravel, sand, and silt. Particle size may range up to cobbles. Clasts are generally rounded. Alluvial deposits are easily recognized by their well-defined bedding and stratification, often consisting of alternating beds of relatively finer and coarser material. In general, texture of alluvial sediments will vary with the gradient of the depositing stream. Coarse gravels occur along steep mountain streams; fine gravels, sands and silts along low gradient channels.

The only sizeable alluvial deposits in the study area used to be found on the floodplains and terraces of the Saint John River. These deposits are no longer available as aggregate sources due to flooding by waters backed up behind the Mactaquac Dam. The reservoir level is approximately 40 m. a.s.l.

3.22 Glaciofluvial outwash deposits

Glaciofluvial outwash materials are transported and deposited by streams and rivers directly in front of glacial ice. They differ from their alluvial counterpart in their variability, a consequence of their depositional environment. Typically a proglacial environment is unstable due to rapid fluctuations in discharge and sediment load of the meltwater streams and changing positions of the ice front.

Glaciofluvial materials consist of well to poorly sorted, bedded to massive sediments that range in texture from silt and fine sand deposited under low flow conditions to massive bouldery gravel beds resulting from major floods. Variations of texture are common. Clasts are subrounded or round. Gravels generally contain a sandy matrix with a trace of washed-in silt. Sometimes catastrophic events caused by the outbursts of ice-dammed lakes may result in deposition of much heterogeneous material.

In this area glaciofluvial deposits are generally found in the Saint John River Valley as outwash terraces (G14-12, 31, 32, 37) and as deposits with undulating surface forms (see G14-05, 07, 27, 33). Where outwash terraces are not being farmed and do not form the land base for a community or industrial development, they could provide sizeable reserves of moderate quality aggregate. Unfortunately many of the once large glaciofluvial terraces along the Saint John River have been inundated by the Mactaquac headpond.

3.23 Ice-contact deposits

Ice-contact granular materials are transported and deposited by meltwater streams in contact with glacial ice. Rapid fluctuations in discharge and sediment load of meltwater streams and changing positions of ice margins result in an unstable depositional environment. Sediments deposited in contact with a glacier tend to slump and slide as supporting ice melts, resulting in irregular surfaces on landforms, and faults and distorted bedding within the materials.

Ice-contact sediments consist of sorted and non-sorted, bedded and massive materials that range in texture from silt and fine sand deposited under low flow conditions to cobble-boulder beds resulting from major floods. Abrupt variations of texture are typical. Lenses or pockets of silt may be present where meltwater was locally ponded. Layers or pockets of flow till resulting from saturated supraglacial debris sliding off the ice may be included in the materials. Clean materials may be found adjacent to dirty materials.

Ice-contact sediments are found in a variety of topographic forms, the more easily recognizable being kames, kame terraces and eskers.

Kames are conical mounds or small hills of granular materials with a local relief of 2 metres to several tens of metres. They form where meltwater sediments are deposited in depressions on the ice surface and later melt out to form chaotically arranged hills and hollows. Kames may be single or grouped. It is thought that G14-19 might be a kame deposit. The materials are suitable for borrow.

Kame terraces form when glaciofluvial sediments are deposited between the glacial ice and an adjacent hillside. Steep ice-contact scarps develop as the ice recedes and leaves the outer edge of the terrace without any lateral support. Collapse and slumping occurs along this scarp and melting of buried ice produces an irregular terrace surface. Some of the higher level terraces along the Saint John River are thought to be ice-contact in origin. They are located at the mouths of large streams, the Shogomoc (G14-34) and the Pokiok (G14-21), or on the valley sides (G14-20, 32, 36).

Eskers are sinuous, steep-sided ridges of sand and gravel formed by the melting out of sediment-choked tunnels of subglacial streams. Their length varies from several tens of metres to many kilometres; their height ranges from a few metres to 20 to 30 metres.

Three major and two lesser esker systems which contain, by far, the bulk of the aggregate reserves in the map-area are from west to east, The Eel River, Canterbury, Little Pokiok-Magaguadavic, Magundy Stream-Harvey Lake and Mactaquac esker complexes. Reserve estimates indicated with the following esker systems are based on total quantity contained in the system. Reserve estimates on the site description sheets in Appendix I reflect quantities in the immediate deposit area.

The northwest portion of the Eel River esker is dominantly sand with minor coarser fractions and a moderate fines content (range 4-10%). The southwest main portion is dominantly pebbly sand with a higher cobble content and moderate fines content (range 4-8%). Estimated reserves are 16.5×10^6 m^3.

The Canterbury esker system is generally sand with minor fine pebble gravel in the northwest portion and grades to a fine pebbly sand with an increasing percentage of larger clasts (pebbles, cobbles) in the southwest. Fines content is moderate to extreme (2-16%) and is a result of the high percentage (avg. 10%) of weathered sedimentary rocks (mudstones and shales). Estimated reserves are 18.7×10^6 m^3.

The Little Pokiok-Magaguadavic esker system is dominantly cobbly gravelly sand. Fines content is generally low (1-1.5%). In areas of low local relief, textures are somewhat finer (gravelly sand). Materials are of igneous lithology and sound. Estimated reserves are 16×10^6 m^3.

The Magundy-Harvey esker is much smaller with reserves estimated to be 1.8×10^6 m^3. Textures are dominantly clean pebbly sands and sandy gravels with minor coarser fractions. Clasts are of igneous lithology and sound.

The Mactaquac esker, in the northeast corner of the map-area is probably an extension of an esker noted by Finamore (1981) in the southeast corner of 21 J/3E. The texture is dominantly pebbly sands grading to a cobbly gravelly sand core. Fines content is generally low (2%). A significant percentage of weathered clasts are present. Estimated reserves are 2.7×10^6 m^3.

3.24 Ablation till

Ablation till is formed during deglaciation. As the ice melts, debris on the surface slumps and slides back and forth eventually to be deposited as irregular hummocks and ridges or as a blanket overlying basal till. Hummocky and ridged ablation till can be difficult to distinguish from ice-contact granular materials; blankets can only be recognized by ground observation of exposed sections. Ablation till is commonly found where large ice masses have stagnated in situ.

Ablation till is typically a loose, non-sorted, non-stratified sandy, silty gravel. Fines may be selectively washed out during deposition.

Pockets of stratified silts, sands and/or gravels as well as very large boulders may be present within the deposit.

Blankets and veneers of ablation till were observed near the south edge of the study area. One such blanket was seen south of Skiff and Grassy Lakes and is described by G14-53. A few small moraine ridges were identified in the Magaguadavic Lake area. (See G14-40.) In general, these deposits are poor sources of granular aggregate and are used only for local borrow purposes. Consequently ablation till unless currently exploited, was not considered as an aggregate resource in this report.

3.25 Other sources of aggregate

In general, glacial drift deposits form the main source of granular aggregate within the map-area. However, a few borrow pits in weathered and shattered rock were noted. A list of these can be found in Appendix 2.

3.3 Field and Laboratory Methods

Information used in the determination of deposit boundaries and thicknesses was obtained by the examination of all natural and man-made exposures that were encountered while driving the passable roads within the map-area and was supplemented by aerial photograph interpretation. Many of the exposures were improved by a little shovel work; some had to be dug to expose even a small section. Observation of granular materials at depth was restricted to pit excavations and a few natural cuts, limiting the accuracy of thickness estimates.

Deposit boundaries were determined by field observations where possible and by aerial photograph interpretation. Average material depths used in the calculations of reserves were obtained by modifying, if necessary, the observed depths, taking into account geologic and topographic considerations and air photograph observations of the deposit beyond excavation boundaries. Airphotos at a scale of 1:20,000 were used in the field and later in the office during the preparation of the maps and report.

Samples of granular materials were taken from the best exposures available in partially exploited and unused deposits. Care was taken to obtain samples that were as representative of the deposit as possible.

For practical purposes, deposits with significant cobble and/or boulder content were sampled by deliberately excluding these large clasts and estimating their number as a percentage of the total exposed face. The mechanical analyses of these samples would therefore represent the particle size distribution of the finer fractions (less than 75 mm) and should be used with the percentage estimates given in the field notes.

Mechanical and lithological analyses were conducted in the lab during the fall of 1981. For the mechanical analyses, samples were dried, split, sieved, and the results weighed. Approximately one hundred of the largest pebbles (20 mm to 50 mm in size) were used for each of the lithologic analyses. Clasts were subjected to a qualitative "failure- under-impact" test. Clasts that broke were considered unsound and the remainder were considered sound. Lithotype of each pebble was noted. Since this procedure does not conform to any standard tests used by aggregate producers, the material should be tested using conventional methods for soundness and abrasion if it is desirable and otherwise suitable for high specification use.

In addition to field observations and laboratory analyses, Department of Transportation aggregate test reports and Water Resources Branch, Department of Environment water well records were consulted for any additional information, re: sand and gravel. Department of Transportation data has been entered in the sample descriptions where there was a positive correlation of sites. Water well locations have been plotted on the accompanying maps where drill logs have indicated an intersection with sand and/or gravel. The serial numbers of the locations are noted for future reference.

3.4 Reserve Calculations

Deposit boundaries are shown as approximate and inferred, depending on the availability of adequate evidence to substantiate airphoto interpretations. Reserve calculations based on inferred boundaries should be regarded with a lesser degree of confidence than if the boundaries are approximate.

Similarly, the reliability of the material thickness information will affect the degree of confidence in the reserve figures. Where good exposures of well-defined deposits were observed, thickness data is considerably more dependable than a poorly exposed section of a deposit with indistinct boundaries.

In general, both thickness and deposit area figures have been kept conservative in making reserve calculations. In addition, reserve figures have been further reduced, somewhat qualitatively, because recoverable reserves are usually less than reserves calculated on a strict "area x thickness" basis. This has been reflected in a reduced average thickness for the deposit.

It must be stressed at this point that the lateral and vertical extent of any deposit is at best an educated guess based on airphoto examination and first hand visual appraisal of the deposit. Therefore prior to any exploitation, consideration is required for a detailed examination for qualitative and quantitative evaluation with respect to a specific end use.

3.5 Quality Limitations

The quality of granular aggregate deposits for high specification use is affected by three major factors: texture, clast lithotypes, and alkali-reactivity.

(1) Texture:

A high content of fine particles (smaller than the 200-mesh sieve) renders a potential aggregate material unsuitable for high specification

uses in the pit run state. Washing could lower the fines content to an acceptable level; however, any processing will increase the cost of exploitation.

An excess of coarse material (cobbles and boulders) can pose operational problems but will not necessarily affect the quality of the deposit. Removal of the "oversize" clasts and the alternative of crushing them are both costly procedures. Crushing, however, might produce a higher grade of aggregate.

In general, a uniform well-graded deposit with few fines and few "oversize" clasts is desireable for most general uses.

(2) Clast Lithotypes:

High specification aggregate should be hard, strong, uncoated, and resistant to both physical and chemical weathering. The lithologic analyses recorded in Appendix 1 have grouped the lithotypes into sound and unsound classes.

There are several ways of assessing the soundness of a lithotype. Detailed petrographic analysis, the magnesium sulphate soundness test and the Los Angeles abrasion loss test are the most common for testing the overall quality of an aggregate. Details for these and other tests are specified by the American Society for Testing and Materials (A.S.T.M.). Methods used in this study are described in section 3.3.

In general, high quality rocks include diabase, granite, gabbro, hard gneiss, basalt, andesite and greywacke and fair quality rocks include conglomerate, schist and limestone/dolomite. Poor quality rocks usually include argillite, chert, phyllite, slate, soft sandstone, and volcanic tuff. Some discrepancies were observed between this listing and the results of tests performed in this study, but can be explained by the excessive weathering and friability of some of the clasts (e.g. weathered granites).

Very often, the quality of aggregate within a deposit will be closely related to the underlying bedrock type. In areas where poorly indurated

sedimentary and low grade metamorphic rocks occur, the materials are more likely to have a higher percentage of unsound lithotypes than areas where the deposits are underlain by intrusives and volcanic rocks.

(3) Alkali-reactivity:

Although no specific testing for alkali-reactivity was performed on the samples taken, it is generally known that certain lithotypes will react with the alkalis in portland cement, resulting in expansion and cracking of the concrete. Lithotypes which are potentially reactive include felsic extrusives, quartzite and chert.

The use of aggregate having high percentages of potentially reactive lithotypes is cautioned. In cases of suspected reactivity, the use of low-alkali portland cement or the partial substitution of fly-ash in place of portland cement serves as a solution to the problem (Swenson, 1973).

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APPENDIX 1

SAMPLE DESCRIPTIONS
of
FOSTERVILLE (21 G/13) and
CANTERBURY (21 G/14)

* Subsequent review of the Lithological Analysis indicates there may be a confusion of fine grained Basic Igneous litotypes with Greywacke

Location #: G13-01

County: Carleton

Type of Deposit: Ice contact

Parish: Woodstock

Exposure Type: Road Cut

NTS: 21 G/13E

Status: Undeveloped

UTM: 161947

Section Description & Comments:

Very poorly sorted, non-stratified, angular to subangular dirty cobbly gravelly sand is exposed here. It is suspected that bedrock is not far below the present base and would limit further deepening of the excavation. This material would be suitable only for fill. About 10% of the clasts are unsound.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
12	8	5-6	400,000

Location #: G13-02 County: York

Type of Deposit: Ice contact Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/13E

Status: Inactive UTM: 116863

Section Description & Comments:

Poorly sorted, poorly stratified cobbly gravelly sand is exposed here. Clasts are angular. Stratification dips approximately 15°N where recognizable. Some boulders are present (usually less that 30 cm diam.) and are angular. Texture estimate: few boulders, 15-20% cobbles. There is an abundance of unsound lithotypes (shale). Silt is coating the clasts.

D.O.T. data (1971) indicate that material as represented by this sample can be recommended for borrow, subbase and base course aggregate. According to the log of test holes, the deposit is erratic, shallow and tonnage is very limited, on the property they investigated.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	78.2	68.1	61.0	44.8	31.8	27.9	15.6	7.0	4.7	3.6	2.9
D.O.T. 1971	80.0		62.0	45.0	30.0	20.0		6.0			2.6

Lithologic Analysis:

Unsound Lithotypes (%) 64		Sound Lithotypes (%) 94			
Sedimentary	6	Metasediment	36	Quartz	2
		Slate	32		
		Basic Igneous*	6		
		Andesite	4		
		Acid Igneous	6		
		Sandstone	8		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	4.5	5-6	125,000

Location #: G13-03 **County:** York

Type of Deposit: Esker **Parish:** Canterbury

Exposure Type: Gravel pit **NTS:** 21 G/13E

Status: Active **UTM:** 153806

Section Description & Comments:

12 m of very poorly sorted mixtures of fines, sands, pebbles, cobbles, some boulders are exposed. Stratification is at best crude, more existing as pockets of material. Some lumps of till are also present. Clasts are subrounded to subangular and most are sound. Some areas have cobbles predominating, in others sand is the main constituent. Overall generalized texture is silty cobbly gravelly sand. Estimated cobbles approximately 5-10%, boulders few.

Another exposure of this deposit was observed on the opposite side of the road, 100 m to the northwest. It presents only a thickness of 3.5 m.

D.O.T. data (1962) indicate an abrasion loss of 31.1% to 35.1% and that the material can be recommended for borrow, subbase and borderline base course aggregate. It should not be considered for base on a chip seal project.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	83.0	75.0	66.9	47.1	33.0	28.5	23.5	14.7	9.9	7.9	6.2
D.O.T. 1962		75.0	64.8		35.4			11.9			6.1
D.O.T. 1962		68.0	59.3		34.6			17.9			9.1

Lithologic Analysis:

Unsound Lithotypes (%) 10		Sound Lithotypes (%) 90	
Sedimentary	10	Basic Igneous	48
		Metasediment	32
		Slate	4
		Acid Igneous	4
		Andesite	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	5	6	300,000 See note in text above

Location #: G13-04 County: York

Type of Deposit: Ice contact Parish: North Lake

Exposure Type: Borrow pit NTS: 21 G/13

Status: Inactive UTM: 970682

Section Description & Comments:

0 - 0.4 m Overburden, iron rich.
0.4 - 3.5 m Very poorly sorted, crudely interstratified medium sand, gravelly clay and fine sand. One bed (15 cm) of pebbly coarse sand was observed. Boulders and cobbles are scarce.

This deposit can only be used for fill because of its general high silt content and the unsound lithotypes that were observed throughout the exposure.

A high water table is suspect.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		3	See G13-07

Location #: G13-05

County: York

Type of Deposit: Glaciofluvial blanket

Parish: North Lake

Exposure Type: Sand pit

NTS: 21 G/13

Status: Inactive

UTM: 979678

Section Description & Comments:

1.5 m of massive, moderately-well sorted, silty very fine sand is exposed. The upper 10-15 cm is a medium sand with occasional pebbles.

Deposition pattern is probably associated with the nearby stream.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			Limited

Location #: G13-06 County: York

Type of Deposit: Esker Parish: North Lake

Exposure Type: Gravel pit NTS: 21 G/13

Status: Inactive UTM: 988680

Section Description & Comments:

A thickness of 4 m of stratified silty sandy pebble gravel is exposed. The surface of the exposure in mainly blanketed by boulders and cobbles. The deposit grades downward into a pebbly sandy silt. Abundant unsound clasts of different lithologies are present.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	81.3	68.4	61.4	49.5	41.1	38.1	33.2	26.2	18.4	11.1	6.9

Lithologic Analysis:

Unsound Lithotypes (%) 19		Sound Lithotypes (%) 81	
Sedimentary	17	Basic Ingeous*	38
Acid Igneous	2	Acid Igneous	3
		Quartzite	2
		Metasediment	26
		Sandstone	10
		Slate	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
5	4	3	120,000

Location #: G13-07

County: York

Type of Deposit: Ice contact

Parish: North Lake

Exposure Type: Borrow pit

NTS: 21 G/13

Status: Abandoned

UTM: 969684

Section Description & Comments:

An exposure of 2 m shows a pebbly silt interstratified with a clean coarse sand. Pebbles are scarce.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	5	2	100,000

Location #: G13-08 | County: York

Type of Deposit: Glaciofluvial | Parish: North Lake

Exposure Type: Gravel pit | NTS: 21 G/13

Status: Abandoned | UTM: 957773

Section Description & Comments:

0 - 1.3 m Massive, moderately to poorly sorted clayey fine pebble gravel with occasional cobbles and boulders. Clasts are subangular. Fines content diminishes downward but is still generally important.

1.3 - 3.0 m Slump covered.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
3	2	1.5	30,000

Location #: G13-09 County: York

Type of Deposit: Esker Parish: North Lake

Exposure Type: Gravel pit NTS: 21 G/13

Status: Inactive UTM: 011844

Section Description & Comments:

A thickness of 6 m of moderately sorted, interstratified pebbly cobble gravel and pebbly coarse sand to fine gravel is exposed. The silt content varies throughout the exposure: some beds are quite clean, others only show clast coatings.

D.O.T. data (1980) indicate that the material can be recommended for base and sub-base.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1980	98		93	85	73	60		23			3.1
D.O.T. 1980			97		93	88		41			8.0

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
2	2	6	120,000 See note in text above

Location #: G13-10

County: York

Type of Deposit: Esker

Parish: North Lake

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Abandoned

UTM: 012842

Section Description & Comments:

This section of this esker complex appears to be massive. The general texture can be described as a cobbly pebbly coarse sand. Some unsound lithotypes are noticed.

D.O.T. data (1961) indicate that this material can be recommended for borrow only.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		6	See note in text above

Location #: G13-11

County: York

Type of Deposit: Ice contact

Parish: North Lake

Exposure Type: Borrow pit

NTS: 21 G/13

Status: Abandoned

UTM: 020832

Section Description & Comments:

Approximately 8 m of cobbly pebble gravel with some beds of medium to coarse pebbly sand are exposed.

A powerline crosses this deposit.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
24	20	6	1,200,000 See note in text above

Location #: G13-12

County: York

Type of Deposit: Esker

Parish: North Lake

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Active

UTM: 024826

Section Description & Comments:

This pit is exploited in two levels: 0-14 m and 14-19 m.

0 - 10 m Moderately sorted, interstratified medium to coarse sand with sandy cobbly pebble gravel. High silt content.
10 - 14 m Sandy cobbly pebble gravel with high silt content.
14 - 19 m Cobbly fine pebble gravel with very few fines coating the clasts.

D.O.T. data (1980) indicate that the material can be recommended for base and seal aggregate.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing D.O.T. 1980			96	64	42	28		10			4.0

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
9	6	12	720,000 See note in text above

Location #: G13-13 County: York

Type of Deposit: Ablation till Parish: North Lake

Exposure Type: Borrow pit, local NTS: 21 G/13

Status: Abandoned UTM: 102673

Section Description & Comments:

A thickness of 3 m of massive, moderately to poorly sorted, silty cobbly pebble gravel is exposed. Occasionally boulders as big as 2 m were noticed. Clasts are subangular to subrounded. High silt content and quite abundant unsound lithotypes were observed.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable

Location #: G13-14

County: York

Type of Deposit: Esker

Parish: North Lake

Exposure Type: Sand pit

NTS: 21 G/13

Status: Inactive

UTM: 108671

Section Description & Comments:

Approximately 6-8 m of a well sorted, interstratified, silt and sand (medium to fine with some laminations of fine pebbles) are exposed. The bottom 1.5 m is a clean pebbly fine sand. Beds are horizontal to oblique at places, undulating or contorted.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
3	2.5	4	100,000

Location #: G13-15

County: York

Type of Deposit: Ice contact

Parish: Canterbury

Exposure Type: Sand pit

NTS: 21 G/13

Status: Inactive

UTM: 148807

Section Description & Comments:

0 - 0.6 m Silty very fine sand.
0.6 - 4.0 m Moderately sorted, interstratified medium sand and pebbly coarse sand; cobbles present in trace amounts. Very low silt content was observed throughout the deposit as the clasts are only slightly coated with it.

The east face is dominantly sand.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,00 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
8	6	4	240,000 See note in text above

Location #: G13-16 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/13

Status: Abandoned UTM: 134806

Section Description & Comments:

0 - 0.6 m Soil development, clay enrichment overburden.
0.6 - 2.0 m Sandy fine pebble gravel border line with a gravelly medium sand. Fines content is moderate, presence of unsound lithotypes is noted.
2.0 - 4.0 m Slump covered. This deposit does not show a very good cohesion.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	95.5	90.2	83.8	61.0	39.8	35.6	29.4	21.1	11.9	6.8	4.9

Lithologic Analysis:

Unsound Lithotypes (%)		Sound Lithotypes (%)	
Sandstone	8	Sandstone	20
Sedimentary	22	Metasediment	16
Metasediment	4	Basic Igneous *	24
Acid Igneous	4	Quartzite	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
10	8	4	320,000 See note in text above

Location #: G13-17

County: York

Type of Deposit: Ice contact

Parish: Canterbury

Exposure Type: Sand pit

NTS: 21 G/13

Status: Abandoned

UTM: 121806

Section Description & Comments:

3 m of massive, moderately well sorted, coarse sand with occasional pebbles are exposed. Significant presence of silt sizes is suspected. Clasts are subangular to subrounded. Abundant unsound lithotypes were observed.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
4	3	3	90,000 See note in text above

Location #: Gi3-18 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/13

Status: Inactive UTM: 115803

Section Description & Comments:

0 - 0.5 m Soil horizon, silty, oxidized (overburden).
0.5 - 1.4 m Fine pebble gravel to pebbly coarse sand. Appears to be massive Silt coating pebbles. Presence of unsound lithotypes and occasional cobbles were observed.
1.4 - 6.0 m Slump covered.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			Limited See note in text above

Location #: G13-19 County: York

Type of Deposit: Esker complex Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/13

Status: Abandoned UTM: 107801

Section Description & Comments:

This exposure is 6 m high and exploited in two levels:

0 - 3.0 m Crudely stratified moderately to poorly sorted silty pebble gravel. Some strata of pebbly silt. The deposit is oxidized to a depth of 2 m.
3.0 - 3.6 m Cobbly pebbly gravel with clasts coated with silt.
3.6 - 6.0 m Pebble gravel with a high silt content giving to the deposit its good cohesion: vertical walls.

High content in unsound lithotypes throughout the exposure. Trace amount of small boulders.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	99.0	90.7	76.6	45.0	29.0	20.9	9.5	3.9	2.7	2.2	1.8

Lithologic Analysis:

Unsound Lithotypes (%) 10		Sound Lithotypes (%) 90	
Sedimentary	8	Basic Igneous*	42
Sandstone	2	Metasediment	28
		Sandstone	12
		Quartz	4
		Andesite	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	4	5	200,000 See note in text above.

Location #: G13-20 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Sand pit NTS: 21 G/13

Status: Inactive UTM: 082803

Section Description & Comments:

Only 1.5 m of this pit face is exposed, the rest (4.5 m) is slump covered. It shows a massive, well sorted, coarse sand with occasional pebbles and a few boulders. Clasts are mainly subrounded. Presence of fines is suspected.

This deposit appears to be part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
10	8	4	320,000 See note in text above.

Location #: G13-21

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Abandoned

UTM: 091815

Section Description & Comments:

Approximately 6 m of massive, moderately to poorly sorted pebbly very fine sand with occasional cobbles and boulders and a low fines content are exposed. The bottom metre and a half presents the higher pebble content with approximately 35%.

At this location the ridge is very narrow (50 m). This might limit its exploitation.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		5	See note in text above.

Location #: G13-22

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Sand pit

NTS: 21 G/13

Status: Inactive

UTM: 087820

Section Description & Comments:

A thickness of 2.5 m of moderately to well sorted, interstratified, medium sand, coarse sand and pebbly sand is exposed. Unsound lithotypes are present.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			See note above in text.

Location #: G13-23 **County:** York

Type of Deposit: Esker **Parish:** Canterbury

Exposure Type: Gravel pit **NTS:** 21 G/13

Status: Inactive **UTM:** 087823

Section Description & Comments:

The east wall of the pit shows 2.5 m of a massive silt with occasional pebbles. The north wall shows low fines content in a poorly sorted, interstratified cobbly gravel, pebbly coarse sand and coarse sand. This deposit has a very poor homogeneity. Stratifications are horizontal to oblique giving certain beds a lenticular aspect.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	5	2	100,000 See note in text above.

Location #: G13-24

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Sand pit

NTS: 21 G/13

Status: Abandoned

UTM: 085838

Section Description & Comments:

0 - 0.4 m Fine sand.
0.4 - 2.0 m Medium to coarse sand with occasional pebbles and cobbles. Fines are very low in content.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
2.5	2	3-4	70,000 See note in text above.

Location #: G13-25 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Sand pit NTS: 21 G/13

Status: Abandoned UTM: 084844

Section Description & Comments:

A first exposure of 3 to 6 m thick shows a silty very fine sand grading into a medium and a coarse sand, then into a fine pebble coarse sand. Cobbles are scarce.

Another exposure 50 m north of this previous one is dominantly sands, being an interstratified medium sand and silt with occasional pebbles and cobbles.

This deposit is part of the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
7	5	4-5	225,000 See note in text above.

Location #: G13-26

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Inactive

UTM: 067863

Section Description & Comments:

0 - 1.0 m Silty bouldery cobbly fine pebble gravel.
1.0 - 2.0 m Silty pebble gravel grading downwards into a better sorted bed of fine pebble gravel.
2.0 - 6.0 m Slump covered; assumed to be gravel. Silt is present in patches or as a partial coating on the clasts.

This deposit is thought to be associated with the Canterbury esker system which contains reserves estimated to be 18,700,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	92.6	84.4	76.3	54.7	32.4	17.1	6.2	2.8	2.0	1.6	1.4

Lithologic Analysis:

Unsound Lithotypes (%)	14	Sound Lithotypes (%)	86		
Sedimentary	14	Metasediment	14	Quartz	2
		Basic Igneous*	48		
		Acid Igneous	8		
		Sandstone	10		
		Quartzite	6		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
4	3	4	120,000 See note in text above.

Location #: G13-27 County: Carleton

Type of Deposit: Ice contact Parish: Richmond

Exposure Type: Gravel pit NTS: 21 G/13

Status: Inactive UTM: 971886

Section Description & Comments:

East wall

0 - 1.5 m Moderately sorted, stratified, oxidized pebbly silty fine sand with occasional cobbles.

1.5 - 8.0 m Moderately to poorly sorted. Interstratified fine beds of pebble gravel and pebbly medium to coarse sand. Low fines content. The strata are dipping towards the southeast.

Occasional cobbles are observed throughout the exposure. At places the beds show deformation structures.

West wall

Interstratified fine sand and medium to coarse sand with occasional pebbles.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	97.7	90.0	86.3	69.9	55.9	46.2	24.3	6.5	2.3	1.5	1.0

Lithologic Analysis:

Unsound Lithotypes (%) 12		Sound Lithotypes (%) 88	
Sedimentary	10	Basic Igneous*	42
Sandstone	2	Metasediment	24
		Sandstone	18
		Quartz	2
		Acid Igneous	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	5	8	400,000 See note in text above.

Location #: G13-28

County: Carleton

Type of Deposit: Ice contact

Parish: Richmond

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Active

UTM: 969883

Section Description & Comments:

The extreme southeast wall of the pit has vertical walls, indicating a fairly high fines content. This deposit is quite similar to G13-27 although the thickness of gravel beds is more important (up to 0.8 m) coarse gravel is the dominant texture. Clasts are subangular and slightly coated with silt. Abundance of unsound lithotypes is noticeable.

The northeast wall appears to be dominantly sand (refer to G13-27 for description).

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
3.6	2.5	6	150,000 See note in text above.

Location #: G13-29 **County:** Carleton

Type of Deposit: Ice contact **Parish:** Richmond

Exposure Type: Sand pit **NTS:** 21 G/13

Status: Inactive **UTM:** 967884

Section Description & Comments:

The general texture of this deposit can be described as a dirty coarse sand crudely stratified with finer beds of pebble gravel. The top meter is a bouldery, cobbly coarse pebble gravel. High silt content and abundance of unsound lithotypes was observed. Poor cohesion result in a thick slump covering.

D.O.T. data (1980) indicate a Los Angeles abrasion loss of 24.3% to 29.2% and that the material is recommended for base and sub-base.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1980	76		60	41	31	24		16			9.9
D.O.T. 1980	97		94	82	62	46		22			4.3

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
11	9	5	450,000 See note in text above.

Location #: G13-30 County: Carleton

Type of Deposit: Ice-contact Parish: Richmond

Exposure Type: Gravel pit NTS: 21 G/13

Status: Inactive UTM: 967887

Section Description & Comments:

A thickness of 2.0 m of poorly sorted, massive bouldery cobbly fine pebble gravel is exposed. High fines content and abundant unsound lithotypes were observed. Clasts are dominantly subrounded. The next 5 m are slump covered.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		6-7	See G13-29

Location #: G13-31

County: Carleton

Type of Deposit: Ice contact

Parish: Richmond

Exposure Type: Borrow pit

NTS: 21 G/13

Status: Abandoned

UTM: 966890

Section Description & Comments:

1 m of crudely stratified, poorly to moderately sorted pebbly silty coarse sand is exposed. Pebble content diminishes downwards. Unsound lithotypes are scarce. The next 5.0 m is slump covered.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		6	See G13-29

Location #: G13-32 County: Carleton

Type of Deposit: Ice contact Parish: Richmond

Exposure Type: Sand pit NTS: 21 G/13

Status: Inactive UTM: 961890

Section Description & Comments:

0 - 0.4 m Overburden.
0.4 - 1.3 m Sandy pebble gravel with low silt content grading downwards into a coarse sand with variable content in fine pebbles.
1.3 - 5.0 m Slump covered; assumed to be dominantly coarse sand.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	86.5	73.6	66.3	46.4	35.5	32.6	26.8	19.8	13.3	8.4	6.4

Lithologic Analysis:

Unsound Lithotypes (%) 16		Sound Lithotypes (%) 84	
Sedimentary	16	Basic Igneous*	32
		Metasediment	38
		Quartz	6
		Sandstone	6
		Acid Igneous	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
7	6	4	240,000 See note in text above.

Location #: G13-33 **County:** Carleton

Type of Deposit: Ice contact **Parish:** Richmond

Exposure Type: Borrow pit **NTS:** 21 G/13

Status: Abandoned **UTM:** 949897

Section Description & Comments:

Approximately 8-9 m of very poorly sorted, cobbly sandy silty pebble gravel are exposed. Few boulders are present, unsound lithotypes are abundant. Clasts are subrounded.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
4	3.5	7	245,000 See note in text above.

Location #: G13-34 County: York

Type of Deposit: Ice contact Parish: North Lake

Exposure Type: Borrow pit NTS: 21 G/13

Status: Abandoned UTM: 977882

Section Description & Comments:

A thickness of 5 m of silty coarse sand to sandy silt is exposed. Clasts are subrounded.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
18	15	4	600,000 See note in text above.

Location #: G13-35 County: York

Type of Deposit: Esker Parish: North Lake

Exposure Type: Esker NTS: 21 G/13

Status: Undeveloped UTM: 993876

Section Description & Comments:

Approximately 6 m of massive, very poorly sorted cobbly silty pebble gravel are exposed. Fines content; very high. Clasts are subrounded to rounded.

D.O.T. data (1960) indicate an abrasion loss of 20.6% to 25.6% and that the material can be recommended for borrow only because of an excess passing no. 200 mesh.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1960	82.0		66.0	52.1	27.8			11.1			8.4
D.O.T. 1960	76.0		60.3	42.0	23.2			5.8			3.7

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			Limited See G13-36

Location #: G13-36

County: York

Type of Deposit: Esker

Parish: North Lake

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Inactive

UTM: 994869

Section Description & Comments:

7 m of crudely stratified, very poorly sorted sandy bouldery cobbly gravel are exposed. Coarse sand content increases downwards. Clasts are subrounded and coated with silt.

D.O.T. data (1980) indicate a Los Angeles abrasion loss of 30.5% and that the material can be recommended for base and sub-base.

This deposit is part of the Eel River esker system which contains reserves estimated to be 16,500,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1980	63		55	48	38	31		12			7.2
D.O.T. 1980	88		74	69	55	39		12			8.5

Lithologic Analysis:

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
2.5	2.0	6	120,000 See note above in text.

Location #: G13-37

County: York

Type of Deposit: Ice contact

Parish: North Lake

Exposure Type: Gravel pit

NTS: 21 G/13

Status: Abandoned

UTM: 977864

Section Description & Comments:

This is a "till like" deposit. 6 m of pebbly silty sand with about 5% cobbles are exposed. Clasts are subangular to subrounded. Unsound lithotypes are abundant. Pit faces were bulldozed to stabilize the slopes.

D.O.T. data (1972) indicate a Los Angeles abrasion loss of 23.0% to 29.0% and that the material can be recommended for borrow and borderline sub-base aggregate. According to log of test hole, the deposit is erratic.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1972	82		70		50	40		9			1.9
D.O.T. 1972	70		60		37	28		13			5.8
D.O.T. 1980	86		76	66	56	46		12			7.5

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			See G13-36

Location #: G13-38

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Trench

NTS: 21 G/13

Status: Undeveloped

UTM: 062868

Section Description & Comments:

The general texture of this deposit can be defined as a pebble gravel, with low silt content and occasional cobbles, (maximum size is 12 cm). Clasts are subangular to subrounded.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
Refer to G13-26		3	Limited

Location #: G13-39 County: York

Type of Deposit: Kame Parish: Canterbury

Exposure Type: Trench NTS: 21 G/13

Status: Undeveloped UTM: 054879

Section Description & Comments:

This is an isolated mound 6-8 m high by 10-15 m diameter. The general texture of this deposit can be defined as a very silty pebble gravel with quite abundant cobbles and boulders. This deposit is not very compact. Clasts are angular to subangular.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
			Minimal

Location #: G13-40 County: York

Type of Deposit: Ice contact Parish: Canterbury

Exposure Type: Manual excavation NTS: 21 G/13

Status: Undeveloped UTM: 123864

Section Description & Comments:

Surficial materials suggest an ice contact deposit.
A hole was dug . xposing .5 m of very silty sandy gravel with 1-2% cobbles.
Clasts are subangular to angular.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable

Location #: G13-41 County: York

Type of Deposit: Ablation till Parish: North Lake

Exposure Type: Borrow pit NTS: 21 G/13

Status: Inactive UTM: 992758

Section Description & Comments:

3 m of bouldery till is exposed in this pit.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable

Location #: G14-01

County: York

Type of Deposit: Esker

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 507955

Section Description & Comments:

Exposed in this pit are sands, gravelly sands, and cobbly gravels. Sorting is moderately poor to moderately good; materials are moderately-well stratified. There is a gradation from sandier textures along the crest and down the flanks of the esker to a bouldery cobbly gravelly core. Sand lenses are present in the coarser portion. The materials are clean. Clasts are subangular to subrounded. Occasional weathered granites and friable mudstones in the cobble size range were noted.

Depth of materials is unknown. Viewed from the north side the esker is 10 m high; viewed from the south it is considerably more, up to 30 m.

This deposit is part of the Mactaquac esker system which contains reserves estimated to be 2,700,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	77.7	68.9	64.6	55.1	46.2	41.5	27.5	9.8	3.2	1.8	1.3

Lithologic Analysis:

Unsound Lithotypes (%) 22		Sound Lithotypes (%) 78	
Sedimentary	12	Metasediment	32
Acid Igneous	6	Basic Igneous*	30
Sandstone	4	Acid Igneous	4
		Sandstone	4
		Slate	4
		Andesite	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
27	10	10	1 ,000,000

Location #: G14-02

County: York

Type of Deposit: Glaciofluvial blanket

Parish: Queensbury

Exposure Type: Roadcut

NTS: 21 G/14E

Status: Undeveloped

UTM: 510957

Section Description & Comments:

Approximately 1.5-2.0 m of fine pebbly sand is exposed in this cut. Materials are moderately to well sorted; crude stratification is evident. A few large pebbles were also observed. Clasts are subrounded.

This deposit is very extensive but is mostly inaccessible at present. The thickness appears to vary and the water table is high, limiting its suitability for exploitation.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	95.7	92.4	91.1	82.4	72.9	55.1	37.6	20.4	5.6	1.9	1.6

Lithologic Analysis:

Unsound Lithotypes (%) 22		Sound Lithotypes (%) 78	
Sedimentary	11	Metasediment	31
Acid Igneous	11	Sandstone	21
		Acid Igneous	11
		Quartzite	11
		Basic Igneous*	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
350	150	1	1,500,000

Location #: G14-03

County: York

Type of Deposit: Esker

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Inactive

UTM: 529931

Section Description & Comments:

Moderately to moderately-well sorted sands and pebbly sands are exposed in this pit. There appears to be a gradation of sands and pebbly sands to a slightly coarser gravelly sandy base. A few cobbles are present near the base. Clasts are subrounded and generally sound; occasional clasts of weathered granite and friable mudstone were observed.

This part of the esker is finer in texture than at site G14-01 but exhibits similar stratigraphy. On the flanks and extending northwards into the glaciofluvial blanket (see map) are thinly bedded sands. Some minor cross-bedding was observed here.

The height of the esker is approximately 10 m but the pit has been extended downwards in gravelly sand for another 2-3 m.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-01		10-12	

Location #: G14-04

County: York

Type of Deposit: Esker

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Inactive

UTM: 546886

Section Description & Comments:

Exposed in this pit are sands, pebbly coarse sand, cobbly gravelly sands. Sorting is poor to moderately good. The deposits are moderately stratified; lenses of sand were observed. Clasts are subrounded. There are about 5% weathered clasts included granites and mudstones. The pebbly coarse sand appears to be derived from weathered granite.

There is a lateral gradation to the northeast as well as downwards from finer textures to coarser textures. A few boulders were observed. The height of the crest in this pit is 12 m.

This deposit is part of the Mactaquac esker system which contains reserves estimated to be 2,700,000 m^3 total.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
5	3	10	300,000 See note in text above.

Location #: G14-05 County: York

Type of Deposit: Glaciofluvial blanket Parish: Queensbury

Exposure Type: Roadcut NTS: 21 G/14E

Status: Undeveloped UTM: 536878

Section Description & Comments:

Approximately 2 to 2.5 m of cobbly gravelly sands and cobbly sandy gravels are exposed in this cut. Materials are moderately to poorly sorted with no evidence of stratification. Clasts are subangular; some (metasediments) are unsound. These materials are slightly dirty indicating presence of fines. Estimate: 5-10% cobbles, few boulders.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	79.3	70.7	67.5	58.2	47.9	40.1	20.0	6.9	4.6	3.7	2.9

Lithologic Analysis:

Unsound Lithotypes (%) 8		Sound Lithotypes (%) 92	
Sedimentary	2	Basic Igneous*	46
Acid Igneous	6	Metasediment	20
		Sandstone	16
		Acid Igneous	6
		Quartz	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
75	25	2.5	625,000

Location #: G14-06

County: York

Type of Deposit: Ice contact (kame?)

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14

Status: Active on demand

UTM: 533873

Section Description & Comments:

Poorly to moderately-well sorted, moderately-well stratified pebble sands, sand, gravel and subangular cobble gravel is exposed in this pit. The top 2-3 m is horizontally stratified although variations do exist which includes a concentration of subangular cobble gravels and coarse gravel sands. Below this the materials are finer and appear to dip slightly in a southward direction.

Approximately 6 m of material has been removed; exploratory holes in the pit floor indicate at least 2 m more of pebbly sands with coarse gravel lenses.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	97.1	84.1	77.3	60.0	51.4	46.3	33.2	15.7	4.9	2.5	1.9

Lithologic Analysis:

Unsound Lithotypes (%) 16		Sound Lithotypes (%) 84			
Metasediment	8	Basic Igneous*	44	Gneiss	2
Sedimentary	6	Metasediment	14		
Quartz	2	Sandstone	10		
		Acid Igneous	10		
		Quartzite	4		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	1.5	6-8	90,000

Location #: G14-07

County: York

Type of Deposit: Glaciofluvial blanket

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Inactive - (poss. abandoned)

UTM: 536867

Section Description & Comments:

0 - 0.5 m Massive silts and clays.
0.5 - 1.0 m Gravelly sands: moderately to poorly sorted, crudely stratified. Clasts subangular to subrounded. Occasional cobbles.
1.0 - 2.0 m Sand: massive, well sorted, medium size.

The gravelly layer thickens upslope and the silt/clay band lenses out.

It is unknown whether the materials are being stripped ready for extraction or reclaimed for subdivision.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-05		2	

Location #: G14-08

County: York

Type of Deposit: Glaciofluvial

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Abandoned

UTM: 543858

Section Description & Comments:

0 - 1.0 m Gravelly sand. Moderately sorted, non-stratified; contains few cobbles. Clasts subrounded and angular (local rock fragments).
1.0 - 1.5 m Sand. Massive, non-stratified. Contains a few ice-rafted cobbles.
1.5 - 7.0 m Slump covered. Appears to be dominantly sands with gravel and a few cobbles and boulders; clasts subrounded and angular.

D.O.T. data (1965) indicate an abrasion loss of 30.4% and recommends the material for borrow.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											
D.O.T. 1965			79.8		70.9			23.4			1.6
D.O.T. 1965			77.3		60.9			9.0			1.2

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-05 D.O.T. (1965)		7	70,000

Location #: G14-09

County: York

Type of Deposit: Esker

Parish: Queensbury

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Inactive

UTM: 448923

Section Description & Comments:

An average of 3 m of poorly sorted, crudely stratified dirty pebbly sand and sandy pebbles is exposed here. Few cobbles were observed. Clasts are subrounded. There are a few unsound shale fragments.

The upper materials are dirtier than those at depth. As well there are fewer but larger pebbles in the cleaner sand at depth. Occasional boulders were noted.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
3	1	3	30,000

Location #: G14-10

County: York

Type of Deposit: Glaciofluvial

Parish: Queensbury

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Abandoned

UTM: 440929

Section Description & Comments:

Moderately well sorted interstratified pebbly sands and sands are exposed here. A few cobbles were observed but content was not significant. Clasts are subangular to subrounded and apparently sound.

This deposit is part of a kame complex.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
50	40	2.5	1,000,000

Location #: G14-11

County: York

Type of Deposit: Glaciofluvial

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 419931

Section Description & Comments:

Well to moderately sorted interstratified sands, pebbly sands, pebble gravel and gravelly sand are exposed here and dip southward. A few cobbles are present in the coarse lenses and layers; an occasional boulder was observed. Clasts are subangular to subrounded. Within the coarser bands $CaCO_3$ coatings were observed.

This is a kame-delta deposit.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing		90.8	85.0	74.5	57.9	43.6	20.1	6.[illegible]	4.4	3.9	3.4

Lithologic Analysis:

Unsound Lithotypes (%)	12	Sound Lithotypes (%)	88
Sedimentary	6	Basic Igneous*	44
Sandstone	6	Metasediment	34
		Acid Igneous	8
		Sandstone	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
11.3	2.2	4-5	90,000

Location #: G14-12

County: York

Type of Deposit: Glaciofluvial delta

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 418934

Section Description & Comments:

Approximately 10-12 m of southward dipping interstratified sands and pebbly sands were observed here. Average bed thickness is 10 cm but varies from 1 cm to 0.5 m. Occasional coarse gravelly sand layers are present. One very large boulder dropstone was observed.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
5	4.5	4.5	200,000

Location #: G14-13

County: York

Type of Deposit: Glaciofluvial

Parish: Queensbury

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 385949

Section Description & Comments:

Moderately to well sorted sands, pebbly sands, pebble gravels are exposed here. Materials are interstratified and dip 10° south. The deposit is dominantly sand but some of the gravelly layers have little if no sand apparent. Clasts are subrounded.

Estimated texture: fines 5%, sand 60%, pebbles 25% (most less than 25 mm), 3-5% cobbles (maximum diameter 150 mm).

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing		96.1	93.4	86.1	77.6	76.9	70.9	58.6	40.3	18.9	9.1

Lithologic Analysis:

Unsound Lithotypes (%) 30		Sound Lithotypes (%) 70	
Acid Igneous	16	Basic Igneous*	32
Sedimentary	8	Metasediment	14
Sandstone	6	Sandstone	12
		Acid Igneous	10
		Andesite	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
9	2.2	4.5	100,000

Location #: G14-14

County: York

Type of Deposit: Esker

Parish: Southampton

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active

UTM: 374953

Section Description & Comments:

Southwest wall:

1 m interbedded sands, pebble sands and gravel overlie 0.5 to 1.0 m varved lacustrine silts and clays interbedded with fine sands. Below is 4 m of gently undulating stratified pebbly sands, sands and pebble gravel.

Southeast (end) wall:

6 m of south dipping, stratified pebbly sands, sands and pebble gravel overlie an antiform structure consisting of approximately 1 m fine sand and silt draped over a core 2.5 m high at crest of very poorly sorted angular cobbly gravelly sand.

Northeast wall:

5 m of undulating, moderately stratified pebbly sands with occasional cobbles. Sorting is poor to moderate; some beds have more pebbles, others less. Sand lenses were observed near the base of the exposure. Occasional boulders are present.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	95.1	84.0	76.8	63.3	53.4	48.2	33.6	14.3	4.9	2.5	1.7

Lithologic Analysis:

Unsound Lithotypes (%) 26		Sound Lithotypes (%) 74	
Acid Igneous	12	Basic Igneous*	48
Sandstone	6	Metasediment	8
Sedimentary	4	Sandstone	8
Basic Igneous	4	Acid Igneous	6
		Quartzite	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
15	7.5	5-6	450,000

Location #: G14-15

County: York

Type of Deposit: Esker

Parish: Prince William

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Inactive

UTM: 478786

Section Description & Comments:

Moderately to poorly sorted coarse sand, gravelly sand, sandy gravel, cobbly gravel was observed here. Stratification is poor. Clasts are subrounded to subangular. Most clasts are sound and of granitic lithology. No boulders were observed at this site, although some were seen nearby.

This deposit is part of an area covered by a veneer of fluvio-glacial materials. A few small kames and the esker shown are the main source of granular material. Bedrock was observed outcropping where the veneer was absent.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
10	6	3	120,000 See also G14-16

Location #: G14-16

County: York

Type of Deposit: Esker

Parish: Prince William

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 481773

Section Description & Comments:

Up to 4 m of well to poorly sorted, massive to laminar ice-contact materials were observed in this pit. The most common textural combination is pebbly sand, but pockets of bouldery cobbles, small stratified sections of pebbly gravel, sandy gravel, cobbly gravelly sand, and thinly bedded sands and silts were observed within the limited pit area. Some of the materials are dirty; in other areas they are clean. Clasts vary from subangular to rounded. The flanks are dominantly fine sand.

This gravel pit area is long and sinuous following an esker. Most of the gravel has been used. Activity is presently at the north end, the south end is used for a dump.

This deposit is part of the Magundy - Harvey esker system which contains reserves estimated to be 1,800,000 m^3 total.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	81.4	70.5	66.5	56.8	45.8	38.0	20.7	7.6	2.2	1.0	0.7

Lithologic Analysis:

Unsound Lithotypes (%) 16		Sound Lithotypes (%) 84			
Acid Igneous	12	Acid Igneous	34	Quartz	2
Sedimentary	4	Basic Igneous*	32		
		Sandstone	12		
		Metasediment	2		
		Andesite	2		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
30	7.5	2	150,000 See note in text above.

Location #: G14-17

County: York

Type of Deposit: Glaciofluvial blanket

Parish: Dumfries

Exposure Type: Roadcut

NTS: 21 G/14E

Status: Undeveloped

UTM: 487873

Section Description & Comments:

0 - 1.0 m Moderately-well stratified pebbly sands, sands with occasional cobbles. Beds appear to dip 20° north east.

1.0 - 2.5 m Slump covered: appears to be granular.

Materials are subrounded; a few unsound clasts were observed. In places bedrock outcrops in adjacent roadcuts and the creek gully; glaciofluvial materials are thin here.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	1.5	1.5	20,000

Location #: G14-18 County: York

Type of Deposit: Ice-contact Parish: Dumfries

Exposure Type: Borrow pit NTS: 21 G/14E

Status: Inactive UTM: 444906

Section Description & Comments:

Approximately 2 m of poorly sorted, crudely stratified granular materials are exposed and overlain by 0.5-1.0 m till. Clasts are subangular and generally sound although a few weathered fragments were noted. Estimated texture: 5% fines, 50% sand, 30-35% pebbles, 10-15% cobbles, few boulders, The most common texture is dirty gravelly sand.

This material would appear to be suitable only for fill without further processing.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
3	2.5	2	15,000

Location #: G14-19

County: York

Type of Deposit: Ice-contact

Parish: Dumfries

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Abandoned

UTM: 393926

Section Description & Comments:

A poorly to moderately sorted crudely stratified ice-contact deposit was observed here. Texture is cobbly dirty sandy gravel. Clasts are subangular. Numerous weathered granitic clasts were observed. Boulders few cobbles 15-20%.

This is a hummocky deposit. The crest height of the pit face is 12 m and the sides decrease to 6 m.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	82.1	74.2	67.6	52.6	36.2	26.0	9.8	4.3	3.3	3.0	2.8

Lithologic Analysis:

Unsound Lithotypes (%) 24		Sound Lithotypes (%) 76			
Sedimentary	12	Metasediment	28	Quartzite	2
Sandstone	8	Basic Igneous*	28		
Acid Igneous	4	Acid Igneous	12		
		Sandstone	4		
		Quartz	4		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	3	4	120,000

Location #: G14-20 County: York

Type of Deposit: Ict-contact Parish: Dumfries

Exposure Type: Gravel pit NTS: 21 G/14E

Status: Active on demand UTM: 387929

Section Description & Comments:

Poorly to moderately sorted, moderately stratified cobbly gravelly sands, pebbly sands, sands are exposed here. The top 2 m is very bouldery and cobbly and then grades downwards into cobble gravel sand. The materials appear to dip eastward. Pebble sands and sand are found near the base. There are some fines but not a lot. Most clasts are sound; a few weathered granitics were observed. Clasts are subangular. Dominant lithology: granodiorite.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	91.1	86.1	81.9	64.5	38.9	33.5	21.4	11.2	8.1	7.5	7.2

Lithologic Analysis:

Unsound Lithotypes (%) 18		Sound Lithotypes (%) 82	
Acid Igneous	12	Basic Igneous*	58
Sedimentary	6	Metasediment	10
		Sandstone	8
		Acid Igneous	6

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6	4	4	150,000

Location #: G14-21 County: York

Type of Deposit: Glaciofluvial Parish: Dumfries

Exposure Type: Gravel pit NTS: 21 G/14 W & E

Status: Active UTM: 357904

Section Description & Comments:

Moderately to well sorted gravels, pebble sands, sands, cobble pebble sands, are exposed in this gravel pit. Materials are very well stratified and cross-bedding is present. Clasts in this deposit are clean (generally free of fines) and subrounded to round. An occasional boulder (up to 400mm) was observed and one very large boulder (1.5 m diameter).

Generalized section:

Top I: (1 - 3 m) Laminated fine sands with occasional coarse/medium sand layers. Some laminations wavy.
II: (2 - 7 m) Moderate to well stratified gravels, sandy gravels, cobbly pebble sand with few medium/coarse sand lenses.
Base III: (4 - 6 m) Well sorted, well stratified pebble sands with occasional pockets and lenses of gravel.

D.O.T. data (1964) indicate an abrasion loss of 14.9%. The material is suitable for borrow and subbase.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	70.8	57.3	50.6	39.3	32.7	30.8	25.8	14.2	2.5	0.7	0.3
D.O.T. 1964			55.7		38.4			14.6			1.5
D.O.T. 1964			90.0		55.3			16.3			1.5

Lithologic Analysis:

Unsound Lithotypes (%) 6		Sound Lithotypes (%) 94	
Acid Igneous	6	Basic Igneous*	64
		Quartzite	10
		Acid Igneous	8
		Sandstone	8
		Metasediment	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
36	20	5	1,000,000

Location #: G14-22 County: York

Type of Deposit: Glaciofluvial terrace Parish: Dumfries

Exposure Type: Sand pit NTS: 21 G/14E

Status: Abandoned UTM: 352904

Section Description & Comments:

Approximately 5 m of well sorted fine pebble sands are exposed in this pit. The materials are moderately stratified. The fine pebbles are subrounded and less than 1 cm diameter.

Rising 2 m above the pit floor is a small remnant of coarse gravel sand. In a nearby roadcut, more coarse gravel sand was observed. It is thought that these occurrences belong to the same deposit; they are closer to the present river than the pebbly sand.

Present use: the pit has a house built in it. The terrace behind is used for grazing and hay.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
12	3	1.5	50,000

Location #: G14-23

County: York

Type of Deposit: Glaciofluvial

Parish: Southampton

Exposure Type: Roadcut

NTS: 21 G/14W

Status: Undeveloped

UTM: 356913

Section Description & Comments:

Poorly sorted, moderately stratified dirty sandy gravels are exposed in this cut. Clasts are subrounded to round. Lithologies appear sound. Cobbles are present (5%); an occasional small boulder was observed.

A river cut bank of this same landform shows approximately 6 m of horizontally bedded sands at depth, apparently below the gravel unit, extending to river level. Estimated thickness of the gravel unit is 8 m.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
36	27	2	500,000

Location #: G14-24

County: York

Type of Deposit: Ice-contact

Parish: Southampton

Exposure Type: Borrow pit

NTS: 21 G/14W

Status: Abandoned

UTM: 347913

Section Description & Comments:

Poorly sorted, non-stratified very dirty gravelly sands are exposed in this pit. Clasts are subangular to subrounded. Numerous lithologies are unsound, occasional cobbles are present; no boulders were observed.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
15	3	1	35,000

Location #: G14-25

County: York

Type of Deposit: Glaciofluvial

Parish: Southampton

Exposure Type: Sand pit

NTS: 21 G/14W

Status: Inactive

UTM: 336905

Section Description & Comments:

About 4 m of well sorted, thinly bedded and cross-bedded fine to medium sand exhibiting some slump structures is exposed here.

From 0.5-1.0 m at the west end of the pit are a few pebbles and pebbly sand lenses.

Immediately to the north a ridge which appears to contain more gravel may be a partially buried esker.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis:

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
12	7	1.5	80,000

Location #: G14-26 County: York

Type of Deposit: Ice-contact: esker Parish: Southampton

Exposure Type: Gravel pit NTS: 21 G/14W

Status: Active on demand UTM: 285918

Section Description & Comments:

Moderate to poorly sorted, massive to moderate-well stratified dirty gravelly sand and fine pebbly sand is exposed in this pit. Clasts are subrounded. Cobbles were observed but are not abundant (less than 1-2%).

Within this matrix are abundant huge boulders (maximum 3 m diameter) sitting isolated or found in pockets. Present methods of extraction leave the largest boulders in place while smaller boulders are pushed aside.

This deposit may be part of an esker or it may be an area of hummocky ice-contact materials. The pit is in an elongated ridge.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	91.2	79.5	73.6	62.9	56.0	51.5	35.3	14.1	4.4	2.7	2.2

Lithologic Analysis:

Unsound Lithotypes (%) 28		Sound Lithotypes (%) 72	
Sandstone	18	Basic Igneous*	44
Acid Igneous	4	Acid Igneous	16
Sedimentary	4	Quartzite	6
		Sandstone	6

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
22	10	2	200,000

Location #: G14-27

County: York

Type of Deposit: Glaciofluvial

Parish: Southampton

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Active

UTM: 289925

Section Description & Comments:

Moderately sorted, moderately stratified (wavy and lenticular beds) slightly dirty gravelly sands, fine pebbly sands, and sands were observed here. Clasts are subrounded and generally sound. Some cobbles are present(less than 5%) Scattered within the deposit are boulders (0.3-1.5 m diameter). They increase in numbers towards the south edge of the pit.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	91.2	78.4	71.4	56.9	45.1	39.9	29.4	16.1	7.6	3.7	2.3

Lithologic Analysis:

Unsound Lithotypes (%) 10		Sound Lithotypes (%) 90	
Sedimentary	6	Basic Igneous*	34
Sandstone	2	Metasediment	16
Acid Igneous	2	Sandstone	10
		Acid Igneous	8
		Quartzite	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
35	21	2	400,000

Location #: G14-28

County: York

Type of Deposit: Glaciofluvial

Parish: Southampton

Exposure Type: Roadcut

NTS: 21 G/14W

Status: Undeveloped

UTM: 227934

Section Description & Comments:

Approximately 3 m very fine sand, silty sand overlies moderately stratified moderately well sorted fine pebbly sand. The clasts of this lower unit are platelike and subrounded to rounded. Depth of this lower unit is unknown. However it does exceed 1 m.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
6 (East of creek)	3	1-1.5	20,000 Refer also to G14-31

Location #: G14-29

County: York

Type of Deposit: Esker

Parish: Southampton

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Abandoned

UTM: 219935

Section Description & Comments:

Poorly sorted, non-stratified to crudely stratified (sometimes pockety) dirty gravelly sands are present. Cobbles and boulders are present and tend to occur in pocket concentrations. Overall: cobbles 5%. boulders few. Clasts are subrounded; about 5% are unsound.

This esker extends to the northwest parallel to the river for about 2 km.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis:

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-30		6	

Location #: G14-30

County: York

Type of Deposit: Esker

Parish: Southampton

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Active on demand

UTM: 212942

Section Description & Comments:

Approximately 15 m of moderately-well stratified, poorly to moderately-well sorted interstratified cobble gravel, dirty gravels, dirty gravelly sand, dirty pebbly sand, medium/coarse sand, silty fine sand are present in the pit face. Occasional boulders are present; maximum size 0.7 m. Dirty gravelly sand is the most commonly occurring unit.

This pit is in the same esker as G14-29 near the northwest end of the ridge.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	71.3	51.2	41.2	24.2	14.3	12.3	9.9	7.9	4.4	2.3	1.8

Lithologic Analysis:

Unsound Lithotypes (%)	Sound Lithotypes (%) 100	
	Basic Igneous*	78
	Metasediment	10
	Acid Igneous	10
	Sandstone	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
24	18	6	1,000,000

Location #: G14-31 County: York

Type of Deposit: Glaciofluvial terrace Parish: Southampton

Exposure Type: Gravel pit NTS: 21 G/14W

Status: Abandoned: flooded UTM: 207945

Section Description & Comments:

Approximately 0.5 m gravelly sand overlies 1.5 m medium/coarse sand at this pit. The terrace which was once well above river level is now only 3 m above the reservoir elevation. As a source of aggregate it is limited by its current land use (farming) and shallow depth to the water table.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
100	80	2	1,000,000

Location #: G14-32 County: York

Type of Deposit: Glaciofluvial Parish: Dumfries

Exposure Type: Gravel pit NTS: 21 G/14W

Status: Inactive UTM: 321897

Section Description & Comments:

Moderately sorted, moderately-well stratified gravelly sands, sands, and silty fine sands are exposed in these pit faces. Occasional cobbles are present usually mixed with the coarser gravelly layers. Boulders are infrequent although some large (ice-rafted) boulders were observed (maximum 1 m). Clasts are subrounded. Some weathered unsound clasts were noted. Dominant texture: gravelly sand.

D.O.T. (1965) indicates an abrasion loss of 16.1% and 16.9%. The material is recommended for borrow, subbase and base coarse aggregate.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	89.7	85.0	80.6	72.7	62.9	56.0	32.0	8.9	4.9	4.3	3.9
D.O.T. 1965			69.0		51.6			9.1			1.4
D.O.T. 1965			81.9		37.8			7.9			3.1

Lithologic Analysis:

Unsound Lithotypes (%) 12		Sound Lithotypes (%) 88	
Acid Igneous	6	Basic Igneous*	46
Sedimentary	6	Metasediment	16
		Quartzite	10
		Acid Igneous	8
		Sandstone	8

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
55	10	2	180,000
D.O.T.(1965)			120,000

Location #: G14-33

County: York

Type of Deposit: Glaciofluvial

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Inactive

UTM: 303901

Section Description & Comments:

A fine sandy capping 0.5 - 1.5 m thick overlies moderately sorted, moderately stratified gravelly sands, sands, and fine pebble sand at this pit. Cobbles are present in trace amounts. Clasts are subrounded and most are sound. Overall texture: gravelly sand.

A pit located to the north of this one across the old highway is dominantly sand. It has been abandoned.

D.O.T. data (1965) indicate abrasion losses of 16.8% and 18.8%. The material is recommended for borrow and subbase.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% P ssing											
D.O.T. 1965			73.6		52.0			11.3			1.4
D.O.T. 1965			56.5		32.7			4.6			1.8

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
100	60	2	1,200,000

Location #. G14-34

County: York

Type of Deposit: Ice-contact

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Active on demand

UTM: 295899

Section Description & Comments:

Poorly sorted, poorly to moderately stratified dirty cobbly gravelly sand is exposed here. Cobbles (2%) are often found in bands. A few large boulders are scattered throughout the deposit (maximum diameter 2 m). Clasts are subrounded. Some weathered rocks are present.

The deposit exposed is 12 m thick. In the pit area itself, about 7-8 m has been removed leaving 4-5 m below the present pit floor.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	93.2	85.5	77.2	56.4	37.0	17.4	5.2	2.0	1.7	1.6	1.5

Lithologic Analysis:

Unsound Lithotypes (%) 12		Sound Lithotypes (%) 88	
Sedimentary	6	Basic Igneous*	54
Acid Igneous	4	Sandstone	12
Sandstone	2	Acid Igneous	10
		Metasediment	8
		Quartzite	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
100	20	6	1,200,000

Location #: G14-35

County: York

Type of Deposit: Ice-contact

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Inactive

UTM: 243914

Section Description & Comments:

Poorly sorted, poorly stratified to non-stratified dirty gravelly sands are exposed in this pit. Occasional lenses of boulder-rich materials occur and some of the coarser gravelly sand layers contain significant numbers of cobbles. Overall: cobbles 5%, boulders few. Clasts are subrounded to subangular. Some weathered clasts were observed, these are predominantly metasediments.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
18	2	4	80,000

Location #: G14-36

County: York

Type of Deposit: Ice-contact

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Active

UTM: 204941

Section Description & Comments:

Approximately 4-5 m of well sorted pebbly sands overlie 8 m poorly sorted, poorly to non-stratified dirty gravelly sand. Cobbles are present (about 5%), usually concentrated in bands or pockets. Boulders are present (most less than 0.5 m diameter, maximum 1.5 m). Clasts are subrounded to subangular. Few are weathered.

The adjacent pit to the west contains similar materials, except for some large blocks of "conglomerate" that were observed both in situ and loose on the pit floor. Maximum size of blocks is 2 m.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	77.7	73.2	71.2	62.1	53.8	49.9	40.3	23.6	11.0	6.1	4.3

Lithologic Analysis:

Unsound Lithotypes (%) 2		Sound Lithotypes (%) 98		
Sedimentary	2	Basic Igneous*	52	Acid Igneous 4
		Metasediment	30	
		Sandstone	6	
		Slate	4	
		Quartzite	4	

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
10	2.5		100,000

Location #: G14-37

County: York

Type of Deposit: Glaciofluvial

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14W

Status: Abandoned

UTM: 175944

Section Description & Comments:

Moderately sorted, moderately stratified gravelly sands, sands, fine pebble sands are exposed in this cut. Cobbles are present (less than 5%). Clasts are subrounded. The occasional weathered stone was observed.

This pit is no longer used as it is in the community of Meductic. Graveyards and residential homes prohibit lateral expansion. Water table inhibits deeper excavation.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
36	2	2.5	50,000

Location #: G14-38

County: York

Type of Deposit: Compound esker

Parish: Prince William

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active

UTM: 426712

Section Description & Comments:

Poorly to well sorted, massive to well stratified cobbly gravelly sands, gravelly sands, gravels, sandy gravels, sands are all exposed in this pit area. The materials are slightly dirty indicating presence of fines; this too, is variable throughout the deposit. Boulders are present, usually in pocket concentrations; none observed were greater than 30 cm diameter. Clasts are subrounded. Lithologies are generally sound but occasional unsound weathered metasediments and granites were observed.

The dominant texture is cobbly gravelly sand. Overall: cobbles 5-10%, boulders few.

D.O.T. data show this to be suitable for borrow purposes with unlimited tonnage.

This deposit is part ot the Little Pokiok - Magaguadavic esker system which contains total reserves estimated to be 16,000,000 m^3.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	61.0	48.9	42.1	29.8	24.3	20.6	12.4	5.6	2.1	1.4	1.2

Lithologic Analysis:

Unsound Lithotypes (%) 10		Sound Lithotypes (%) 90	
Acid Igneous	8	Basic Igneous*	46
Basic Igneous	2	Acid Igneous	18
		Quartzite	12
		Sandstone	10
		Siltstone	2
		Quartz	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
40 D.O.T. (1979)	30	8	2,000,000 Unlimited See note in text above

Location #: G14-39

County: York

Type of Deposit: Glaciofluvial plain *

Parish: Prince William

Exposure Type: Sand pit

NTS: 21 G/14E

Status: Active

UTM: 432704

Section Description & Comments:

Approximately 0.5-2.0 m moderate-well sorted, moderate-well stratified pebbly medium sand overlies 2.0-3.5 m of very well sorted, well-stratified and cross-bedded medium sand. The entire thickness exposed does not exceed 4 m. Pebbles are subrounded and of sound lithology.

*This glaciofluvial deposit lies immediately adjacent to the southward extension of the compound esker (see G14-38) and has been mapped with it as one complex unit.

This deposit is part of the Little Pokiok - Magaguadavic esker system which contains total reserves estimated to be 16,000,000 m3.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
12.5	6	4	100,000 See note in text above.

Location #: G14-40

County: York

Type of Deposit: Ablation till

Parish: Dumfries/Prince William

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Inactive

UTM: 399702

Section Description & Comments:

Matrix composed of dirty fine pebbly sand derived from acid igneous rocks (mostly granite). Coarse fraction includes coarse gravel and cobble subangular clasts (5-10%) and a few very large subangular boulders.

Other ridges nearby have more medium to fine sand - possibly a glaciofluvial veneer.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	92.8	87.1	86.6	80.3	74.2	67.9	57.2	44.6	33.1	23.7	16.5

Lithologic Analysis:

Unsound Lithotypes (%) 40		Sound Lithotypes (%) 60	
Acid Igneous	36	Acid Igneous	50
Sedimentary	4	Basic Igneous*	4
		Metasediment	4
		Sandstone	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
10	8	1	85,000

Location #: G14-41 County: York

Type of Deposit: Glaciofluvial (fan delta?) Parish: Prince William

Exposure Type: Borrow pit NTS: 21 G/14E

Status: Inactive UTM: 409716

Section Description & Comments:

Moderately sorted, moderately horizontally stratified gravelly sands grade downward through fine pebble sand to medium sand at 1.8 m depth. Section extends downward for another 2 m but is slump covered. Clasts are subrounded and sound. One boulder was noted. A few small cobbles were also observed.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
300	250	2	5,000,000

Location #: G14-42

County: York

Type of Deposit: Compound esker

Parish: Prince William

Exposure Type: Sand pit

NTS: 21 G/14E

Status: Abandoned

UTM: 424736

Section Description & Comments:

Approximately 4 m of well sorted medium sand is exposed in this pit. A thin veneer of pebbly sand is present in some places. Within the sands are a few very large (maximum diameter 2 m) angular to subangular granitic boulders.

This deposit is part of the Little Pokiok Magaguadavic esker system which contains total reserves estimated to be 16,000,000 m^3.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
12.5	7.5	2	120,000 See note above in text.

Location #: G14-43

County: York

Type of Deposit: Compound esker

Parish: Prince William

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Inactive

UTM: 422742

Section Description & Comments:

Moderately sorted, non-stratified gravelly sand overlies medium to coarse sand. Materials are 1.3 m thick. Clasts are subrounded and sound.

This deposit is part of the Little Pokiok - Magaguadavic esker system which contains total reserves estimated to be 16,000,000 m^3.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
100	65	2.5	1,000,000 See note above in text.

Location #: G14-44

County: York

Type of Deposit: Esker

Parish: Dumfries

Exposure Type: Roadcut

NTS: 21 G/14E

Status: Undeveloped

UTM: 422781

Section Description & Comments:

Dirty, poorly sorted, non-stratified cobble gravels are exposed in this cut. Nearby there is more sand, here there is but little. Clasts are subrounded. Most lithologies are sound but a few weathered stones are present. Boulders were noted (usually smaller than 0.5 m diameter).

No estimate of texture was made as exposures were poor. In general the materials are coarse.

This esker has variable height and width. Maximum height is estimated to be 30 m. See mapped unit for width. As well this esker system has a kettled surface superimposed on its ridge.

This deposit is part of the Little Pokiok - Magaguadavic esker system which contains total reserves estimated to be 16,000,000 m^3.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	75.5	54.9	39.5	15.2	7.1	6.5	5.7	4.5	3.1	2.0	1.5

Lithologic Analysis:

Unsound Lithotypes (%) 24		Sound Lithotypes (%) 76	
Acid Igneous	12	Basic Igneous*	8
Sedimentary	8	Acid Igneous	24
Sandstone	4	Sandstone	24
		Metasediment	20

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		30	"Unlimited" See note above in text.

Location #: G14-45

County: York

Type of Deposit: Esker

Parish: Dumfries

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Abandoned

UTM: 408795

Section Description & Comments:

About 6-7 m poorly sorted, laterally variable cobble gravels, gravelly sands, sands are apparent. All the materials are dirty. Clasts are subrounded. Boulders are present but not numerous (maximum diameter 0.5 m). Cobble content reaches 10-15% in coarser zones.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-47		6	

Location #: G14-46 County: York

Type of Deposit: Esker Parish: Dumfries

Exposure Type: Sand pit NTS: 21 G/14E

Status: Abandoned UTM: 381826

Section Description & Comments:

Approximately 8 m of medium to coarse sand containing a few pebbles is exposed in this pit. Pebbles are subrounded and sound. Occasional cobbles were observed. No stratification was apparent other than a slightly more pebbly capping (less than 0.5 m)

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	95.1	87.2	85.5	81.3	79.4	78.5	73.0	33.2	6.1	2.0	1.3

Lithologic Analysis:

Unsound Lithotypes (%) 14		Sound Lithotypes (%) 86	
Sedimentary	14	Basic Igneous*	50
		Acid Igneous	16
		Sandstone	10
		Quartzite	8
		Metasediment	2

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-47		8	

Location #: G14-47 County: York

Type of Deposit: Esker Parish: Dumfries

Exposure Type: Gravel pit NTS: 21 G/14E

Status: Inactive (poss. demand use) UTM: 374834

Section Description & Comments:

Poorly sorted, poorly stratified dirty cobbly gravels, cobbly gravelly sands, sands are exposed in this pit. Clasts are subrounded to round and generally sound.

Exposure is approximately 5 m high; esker is 18-20 m high in this area.

This deposit is part of the Little Pokiok - Magaguadavic esker system which contains total reserves estimated to 16,000,000 m^3.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis:

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		16-18	"Unlimited" See note in text above.

Location #: G14-48

County: York

Type of Deposit: Ice-contact

Parish: Dumfries

Exposure Type: Gravel pit

NTS: 21 G/14E

Status: Active on demand

UTM: 362857

Section Description & Comments:

Approximately 7 m of moderately-well sorted, moderately-stratified (horizontal and cross-bedded) pebbly sands. Clasts are subrounded; some are platey. Occasional subangular coarse gravel clasts and small cobbles were observed. Several boulders (less than 0.5 m diameter) were on the pit floor.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	92.3	84.6	80.1	63.9	48.3	38.8	24.9	12.6	4.4	1.3	0.9

Lithologic Analysis:

Unsound Lithotypes (%) 14		Sound Lithotypes (%) 86	
Acid Igneous	10	Basic Igneous*	40
Sedimentary	4	Acid Igneous	24
		Metasediment	10
		Quartzite	8
		Sandstone	4

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
30 (North of Little Pokiok Stream)	10	6-7	250,000

Location #: G14-49

County: York

Type of Deposit: Ice-contact

Parish: Dumfries

Exposure Type: Borrow pit

NTS: 21 G/14E

Status: Abandoned

UTM: 365395

Section Description & Comments:

Moderately-poorly sorted, non-stratified cobbly gravelly sand is exposed here overlying medium-coarse sands. The coarse materials are 2 m thick; depth of sands is unknown and may be only a thick band as gravelly material is in the pit base. This is a very poor exposure and the surface has been severely disturbed.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
18	8	1	50,000

Location #: G14-50

County: York

Type of Deposit: Glaciofluvial blanket

Parish: Canterbury

Exposure Type: Borrow pit

NTS: 21 G/14W

Status: Abandoned

UTM: 306861

Section Description & Comments:

Approximately 1.5 m moderately-poorly sorted, non-stratified dirty gravelly sands are exposed in this pit. A few cobbles are present and several boulders (less than 0.17 m diameter). Clasts are subangular.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
4	2	1	15,000

Location #: G14-51 County: York

Type of Deposit: Glaciofluvial Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/14W

Status: Inactive UTM: 164796

Section Description & Comments:

Dirty, moderate to well stratified gravelly sands are present in this pit. Cobbles are few. Most of the gravel is fine pebbles. Clasts are subrounded. In some areas of the pit there are concentrations of subangular coarse pebbles and small cobbles but these are infrequent. The stratified materials dip approximately 10 ° east.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-52		6	

Location #: G14-52 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/14

Status: Active UTM: 192787

Section Description & Comments:

Very poorly sorted, non-stratified to crudely-stratified dirty cobbly gravelly sand to dirty cobbly sandy gravel. Clasts are subangular to subrounded. Some very large boulders are present. Cobbles approximately 15-20%, boulders few. Numerous unsound weathered mudstones and shale cobbles are present and break down easily into clays and silts.

This deposit is part of the Canterbury esker system which contains total reserves estimated to be 18,700,000 m^3.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	80.2	70.0	59.8	41.9	32.4	25.0	17.2	12.2	10.0	8.3	6.5

Lithologic Analysis:

Unsound Lithotypes (%) 22		Sound Lithotypes (%) 78	
Sedimentary	10	Basic Igneous*	14
Acid Igneous	8	Metasediment	44
Sandstone	4	Acid Igneous	10
		Sandstone	10

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
80	60	3-4	2,400,000 See note above in text.

Location #: G14-53 County: York

Type of Deposit: Ablation till Parish: Canterbury

Exposure Type: Roadcut NTS: 21 G/14W

Status: Undeveloped UTM: 192696

Section Description & Comments:

Large angular boulders (mostly granitic) are present in a matrix of poorly sorted pebbly sandy fines. This material could possibly be used as fill as the sand and pebble content is significant. Texture: Matrix: fines 45%, sand 40%, pebbles 15%; coarse fraction: boulder and cobble content variable.

Mechanical Analysis: n/a

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing											

Lithologic Analysis: n/a

Unsound Lithotypes (%)	Sound Lithotypes (%)

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
		Variable	

Location #: G14-54 County: York

Type of Deposit: Ice-contact Parish: Canterbury

Exposure Type: Gravel pit NTS: 21 G/14W

Status: Active UTM: 182674

Section Description & Comments:

Poorly to moderately sorted gravelly coarse sands are exposed in this pit. Cobbles are present (5-10%); scattered throughout are large boulders. Clasts are subangular to subrounded and most of the materials. are grantic.

Near the south end of the pit the materials are well-stratified and somewhat finer.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	88.6	75.4	70.4	58.4	48.2	45.6	34.8	16.6	9.9	7.1	4.9

Lithologic Analysis:

Unsound Lithotypes (%) 12		Sound Lithotypes (%) 88	
Acid Igneous	6	Acid Igneous	66
Sedimentary	4	Basic Igneous*	2
Conglomerate	2	Metasediment	20

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
15	5	8-10	400,000

Location #: G14-55

County: York

Type of Deposit: Esker

Parish: Canterbury

Exposure Type: Gravel pit

NTS: 21 G/14

Status: Inactive

UTM: 226787

Section Description & Comments:

0 - 2.0 m Very poorly sorted, crudely stratified bouldery cobbly sandy pebble gravel.

Texture estimate: boulders 5-10% and cobbles 15-20%.

2.0 - 8.0 m This section of the deposit grades downwards into a finer material as boulder and cobble content decreases. General texture: Cobbly, sandy, pebble gravel. Some areas show more of a gravelly sand.

Clasts are subrounded and coated with silt. Silt content increases in places. Unsound lithotypes were frequently observed throughout the exposure.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	80.8	64.1	56.3	34.6	19.4	9.3	3.5	2.0	1.8	1.7	1.66

Lithologic Analysis:

Unsound Lithotypes (%) 2		Sound Lithotypes (%) 98	
Sedimentary	2	Sandstone 14	Quartzite 6
		Siltstone 4	Quartz 2
		Metasediment 28	Metamorphic 10
		Basic Igneous 30	
		Acid Igneous 2	

Estimation of Peserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
See G14-56		6	

Location #: G14-56 County: York

Type of Deposit: Esker Parish: Canterbury

Exposure Type: Borrow pit NTS: 21 G/14

Status: Inactive UTM: 232783

Section Description & Comments:

0 - 6.0 m Massive, poorly sorted, pebbly silty sand. Cobbles are few, less than 5%; boulders trace amount. Clasts are subrounded and dominantly sound. Noted were 10% unsound lithotypes.

This deposit is part of the Canterbury esker system which contains total reserves estimated to be 18,700,000 m^3.

Mechanical Analysis:

Sieve	1½"	1"	3/4"	3/8"	#4	8	16	30	50	100	200
% Passing	96.7	90.3	88.4	77.6	69.8	61.2	44.1	32.9	10.0	22.5	16.3

Lithologic Analysis:

Unsound Lithotypes (%) 6		Sound Lithotypes (%) 94			
Acid Igneous	4	Basic Igneous*	32	Quartz	2
Sandstone	2	Quartzite	16		
		Sandstone	14		
		Metasediment	8		
		Andesite	2		

Estimation of Reserves:

Total deposit area (hectares)	Area workable (hectares)	Average thickness (meters)	Recoverable reserves (m^3) probable
40	20	6	1,000,000 See note in text above.

APPENDIX 2

BORROW PITS IN FRACTURED AND WEATHERED BEDROCK

NTS: 21 G/14		NAME: Canterbury	
UTM	Location Number	Rock Type	Observations
494889	-	Granite	Deeply weathered to fine pebble coarse sand.
475876	-	Sandstone	Small quarry: abandoned. Approximately 10 m high pit face.
257862	-	Granite	Deeply weathered to fine pebble coarse sand. Excavated to 6-8 m depth.
292842	-	Granite	Small quarry: abandoned. Partially weathered. Excavated to 6 m.

PROVINCE DU NOUVEAU-BRUNSWICK
MINISTERE DES RESSOURCES NATURELLES
DIRECTION DES RESSOURCES MINIERES

PLANCHE 81-82

RESSOURCES GRANULAIRES

CANTERBURY

21G/14

ECHELLE 1:50,000 SCALE

Milles 0 1 2 3 Miles

Mètres 1000 0 1000 2000 3000 4000 Metres

DEPOTS

Alluvion (sable et gravier)

Epandage fluvio-glaciaire (surtout sable et gravier pouvant contenir des blocs et des galets)

Sédiments de contact glaciaire (sable et gravier; ordinairement stratifiés et pouvant contenir des blocs et des galets ainsi que des quantités variables de limon, d'argile ou de till)

Till d'ablation (ensemble plus ou moins compact de blocs, cailloux, sable, limon et argile en proportions variable; peut parfois inclure des zones de sable et gravier triés)

SYMBOLES

PROVINCE OF NEW BRUNSWICK
DEPARTMENT OF NATURAL RESOURCES
MINERAL RESOURCES DIVISION

PLATE 81-82

GRANULAR RESOURCES
of
CANTERBURY

21G/14

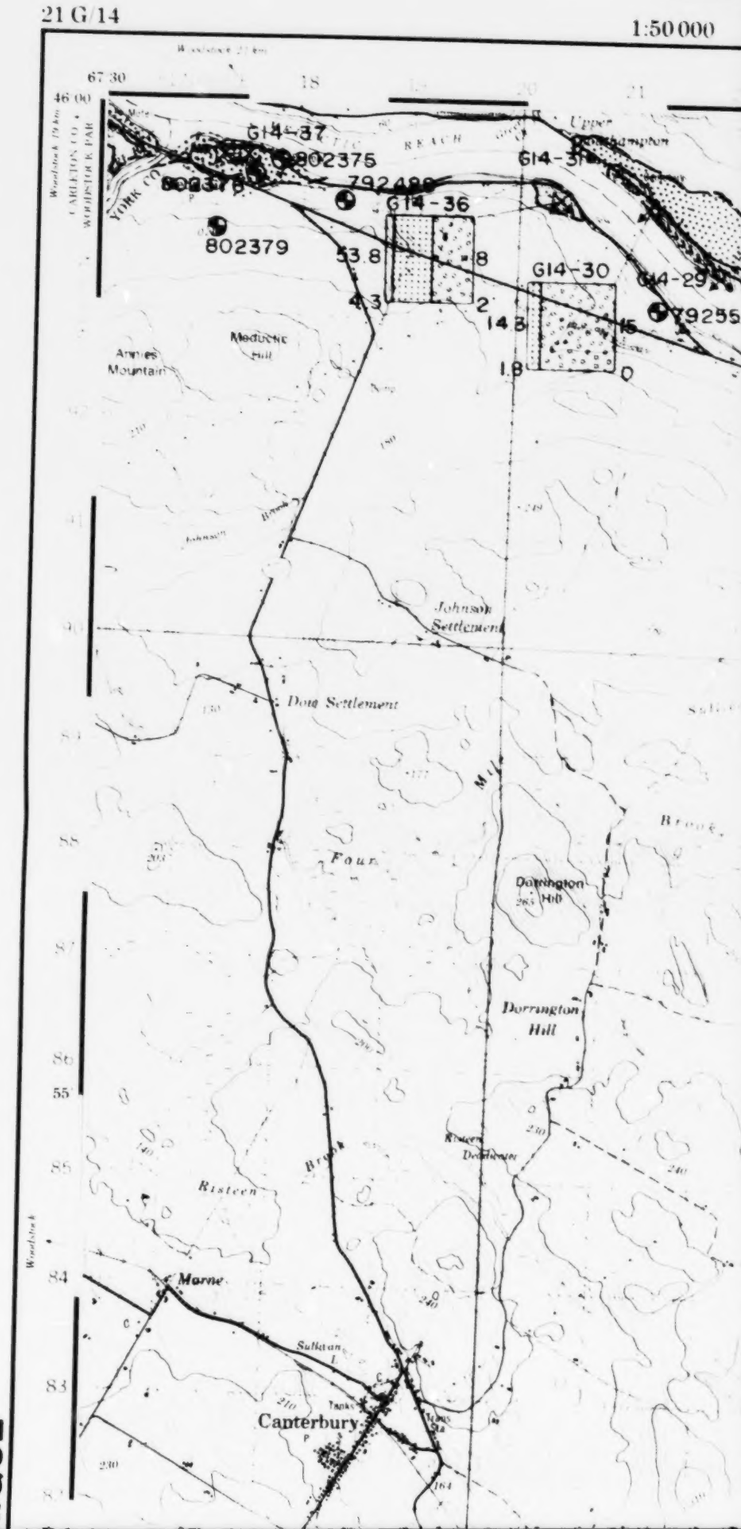
DEPOSITS

Alluvium (sand and gravel)

Glaciofluvial outwash (mainly sand and gravel, may contain cobbles and boulders)

Ice-contact deposits (mainly sand and gravel; usually stratified and may contain cobbles and boulders with varying amounts of silt, clay and/or till)

Ablation till (poorly to moderately compacted agglomeration of boulders, cobbles, pebbles, sand, silt and clay in varying proportions; may locally include pockets of sorted sand and gravel)



G14-37
802375
802378
792488
G14-36
802379
53.8
8
4.3
2
G14-31
G14-30
14.3
15
1.8
0
G14-29
792551
G14-28
Upper Southampton
Dunham Hill
Meductic Hill
Temple
SOUTHAMPTON PARISH
CANTERBURY PARISH
SHOGOMOC REACH
Middle Southampton
G14-27
45.1
6
2.3
10
G14-26
56.0
4
2.2
28
MACTAQUAC
G14-35
Ritchie
G14-33
792503
LAKE
G14-25
802383
G14-34
37.0
12
1.5
12
G14-32
62.9
6
3.9
12
G14-14
53.4
5.5
1.7
26
G14-13
7.6
6
3.0
G14-20
38.9
9
7.2
18
36.2
26
G14-21
1-3
32.7
10
0.3
6
G14-49
Johnson Settlement
Doug Settlement
Sullivan
Brook
Dorrington Hill
265
Risteen
Risteen Dorchester
Marne
Sullivan L.
Canterbury
Tanks
Tower
Inkaham Lake
Carter Lake
Bog
Jamieson Lake
Charlie Lake
Stream
Little Jamieson Lake
Moon Pond
Long Pond
Indian Rips
Indian Brook
Indian Lake
Brook's Lake
Allandale
Canoe Brook
G14-50
G14-48
48.3
6.5
0.9
14
G14-47
G14-46
79.4
8
14
Stream
FA
17
18
19
20
21
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39
40

DA

MÉTRIQUE

EDITION 2

21 G/14

JOHN

RIVER

MACTAQUAC

LAKE

REACH

QUEENSBURY PARISH
DUMFRIES PARISH

Upper Queensbury

792506

Dumfries

Parent Bog

String Bog

Day Hill

Granite Hill

Davidson Lake

Big Deadwater

Rosborough Settlement

Prince William

Lower Prince William

Bear Island Cove

Causeway

Hammond Brook

Tweedie Brook

Davidson Bk

Pokiok Stream

Pokiok

Mactaquac

Mill Brook

Stream

Maliseet 20 Km

Maliseet 21 Km

Maliseet 22 Km

Maliseet 23 Km

Maliseet 24 Km

Maliseet 25 Km

Maliseet 26 Km

Maliseet 27 Km

Maliseet 28 Km

Maliseet 29 Km

Maliseet 30 Km

Maliseet 31 Km

Maliseet 32 Km

Maliseet

sable et gravier triés)

SYMBOLES

Contact géologique (approximatif, déduit)	
Subdivision du dépôt (pour calcul de réserve)	
Escarpement (hachures indiquent la pente)	
Esker (direction probable d'écoulement)	
Esker (direction d'écoulement inconnue)	
Important chenal de fonte glaciaire (avec la direction probable d'écoulement)	
Petit chenal de fonte glaciaire (avec la direction probable d'écoulement)	
Gravière, banc d'emprunt	
Site d'échantillonage (autre que gravière)	
Carrière	
Emplacement et numéro de série; données de forage de puits (obtenues du Ministère de l'Environnement, faisant reférence à du sable et/ou à du gravier	772276
Numéro d'identification du site (voir le profil de l'échantillon ou les notes en appendice)	J14-27
Information non disponsible	N.A.

pockets of sorted sand and gravel)

SYMBOLS

Geological boundary (approximate, inferred)	
Deposit subdivision boundary (for reserve calculation)	
Terrace scarp (hachures on slope)	
Esker (probable flow direction)	
Esker (flow direction unknown)	
Large glacial drainage channel (with probable flow direction - usually has discontinuous veneer / blanket of granular material)	
Small glacial drainage channel (with probable flow direction)	
Gravel pit, borrow pit	
Location other than gravel pit	
Bedrock quarry, borrow pit in weathered or broken rock	
Location and serial number: water well data (available from Dept. of Environment) with reference to sand and/or gravel in drillers' log description	772276
Site description number - see grading diagram and/or notes in appendix	J14-27
Not available	N.A.

PROFIL DE L'ECHANTILLON

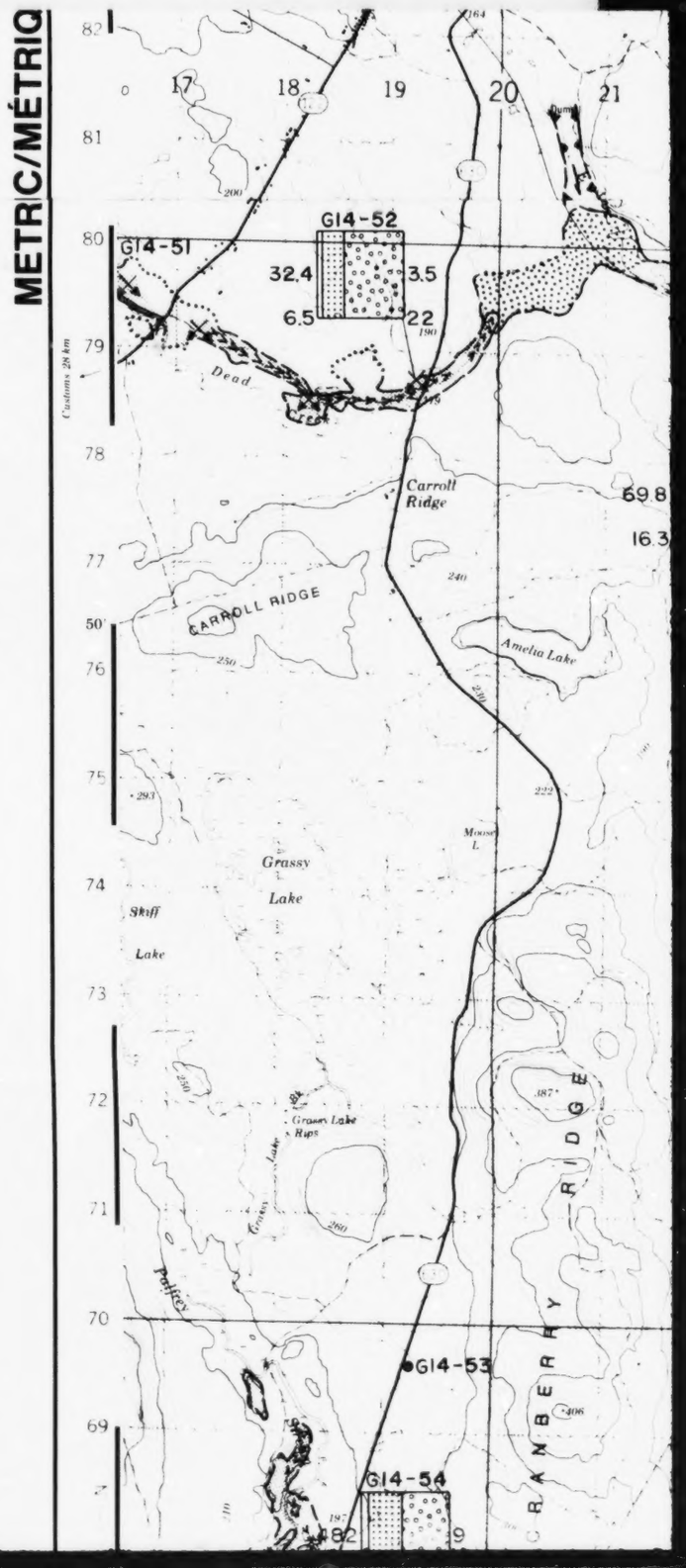
J14-27 - *Numéro du site*
0.3 - *Epaisseur de la couche superficielle (m)*
% du total passant le # 4 65.5 | 5.0 - *Hauteur moyenne de la section ou épaisseur moyenne du matériel (m)*
% du total passant le # 200 10.2 | 29 - *% des lithotypes indésirables*

limon | sable | gravier

GRADING DIAGRAM

J14-27 - *Location number*
0.3 - *Overburden depth (m)*
% of total passing # 4 65.5 | 5.0 - *Section height or average material depth (m)*
% of total passing # 200 10.2 | 29 - *% unsound lithotypes*

silt | sand | gravel



G14-52
32.4 3.5
6.5 22

G14-55
19.4 6
1.66 2

G14-56
69.8 6
16.3 6

G14-53

G14-54

G14-40
74.2 4.5
16.5 40

Carroll Ridge
CARROLL RIDGE
Amelia Lake
Grassy Lake
Deer Lake
Kilburn Lake
Shagomoc Lake
Flat Top Mountain
Lily Lake
Tom Davis Lake
Clear Lake
Rocky Lake
Big Duck Lake
Magaguadavic Lake
Little Magaguadavic Lake
Meadow Brook
Mud Brook
Stony Brook
Indian Lake
Little Jamieson Lake
Moose Pond
Pear L.
Collicott Pond
Doyle Pond
Dead
Grass Lake
Cranberry Lake
Little Cranberry Lake
Deer Lake Brook
Kilburn Brook
Shagomoc Stream
Trans-Canada Highway
CANTERBURY PARISH
MEADUM PARISH
DUMFRIES PARISH
MEADUM PARISH
CHAMCOOK
RANGE
RAY RIDGE

FA

STREAM

G14-45

G14-44

7.1 30

1.5 2

G14-15

G14-16

15.8 3.5

0.7 16

800935

LAKE GEORGE

G14-43

74

G14-42

G14-38

24.3 8

1.2 10

G14-41

G14-39

G14-40

74.2 45

16.5 40

800921

TABLEAU D'ASSEMBLAGE DU SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE

21 H 4 | 21 H 3 | 21 H 2

21 G 13 | 21 G 14 | 21 G 15

METRIC/METRIQUE

Important chenal de fonte glaciaire (avec la direction probable d'écoulement)

Large glacial drainage channel (with probable flow direction - usually has discontinuous veneer / blanket of granular material)

Petit chenal de fonte glaciaire (avec la direction probable d'écoulement)

Small glacial drainage channel (with probable flow direction)

Gravière, banc d'emprunt

Gravel pit, borrow pit

Site d'échantillonage (autre que gravière)

Location other than gravel pit

Carrière

Bedrock quarry, borrow pit in weathered or broken rock

Emplacement et numéro de série; données de forage de puits (obtenues du Ministère de l'Environnement, faisant reférence à du sable et/ou à du gravier

772276

Location and serial number: water well data (available from Dept. of Environment) with reference to sand and/or gravel in drillers' log description

Numéro d'identification du site (voir le profil de l'échantillon ou les notes en appendice)

J14-27

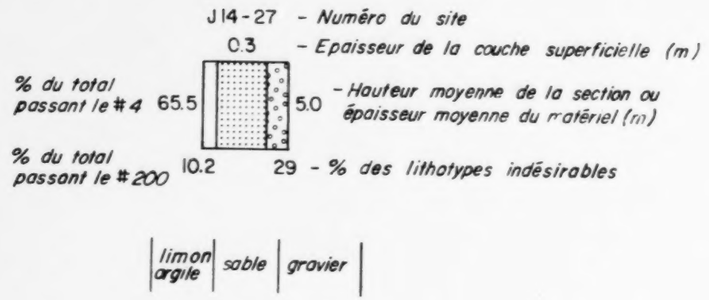
Site description number - see grading diagram and/or notes in appendix

Information non disponsible

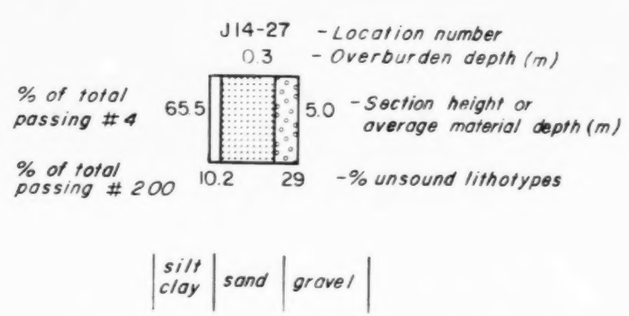
N.A.

Not available

PROFIL DE L'ECHANTILLON


J14-27 - Numéro du site
0.3 - Epaisseur de la couche superficielle (m)
% du total passant le #4
65.5
5.0 - Hauteur moyenne de la section ou épaisseur moyenne du matériel (m)
% du total passant le #200
10.2
29 - % des lithotypes indésirables
limon argile
sable
gravier

GRADING DIAGRAM



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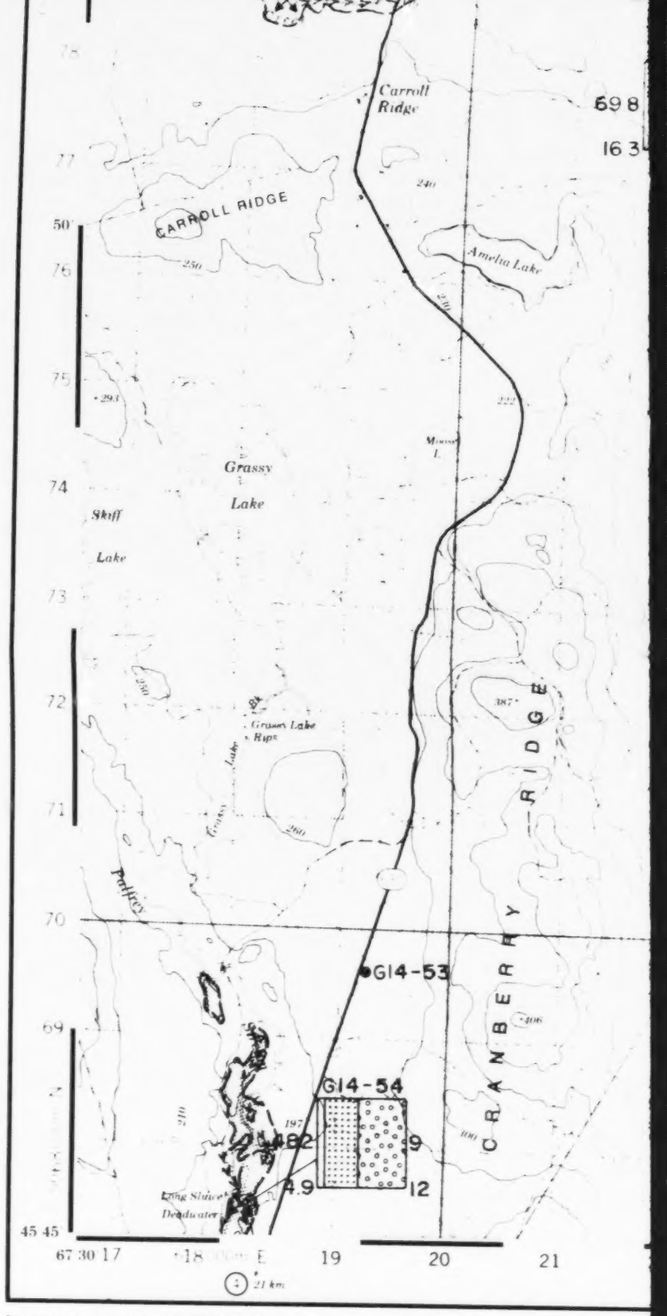
C. LAVERGNE 1981.
GEOCON INC.



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CANTERBURY
NEW BRUNSWICK

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Miles
Metres 1000 0 1000 2000 3000 4000 Mètres
Yards 1000 0 1000 2000 3000 4000 Verges

Information concerning location and precise elevation of bench marks can be obtained by writing to the Geodetic Survey, Surveys and Mapping Branch, Ottawa

On peut obtenir ment en écrivant

CONVERSION SCALE FOR ELEVATIONS

Metres 30 20 10 0 50 100
Feet 100 50 0 100 200 300 400 500

ECHELLE

CONTOUR INTERVAL 10 METRES
Elevations in Metres above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

Systeme de

G14-44
7.1 30
1.5 24
G14-43
74
G14-42
G14-38
24.3 8
1.2 10
G14-41
G14-40
74.2 45
16.5 40
G14-39
G14-15
G14-16
5.8 3.5
0.7 16
800935
800921
Lake George
Donnelly Settlement
Magundy Hill
Magundys
LAKE GEORGE
LAKE GEORGE PROV. PARK
Blaney Ridge
Lake Road
Harvey Lake
Second Harvey Lake
Mud Lake
Meadow Brook
Little Magaguadavic Lake
Magaguadavic Lake
PRINCE WILLIAM PARISH
MANNERS SUTTON PARISH
DUMFRIES PARISH
Work Mills 10 km
Harvey 3 km
50
70
69
68
45 45
67 00
37 38 39 40 41 42 43 44 45 46 47 48 65 50 51 52 53 55

TABLEAU D'ASSEMBLAGE DU SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE

68 00 — 66 30 — 46 15 — 45 30

21 G/4	21 G/3	21 G/2
21 G/13	21 G/14	21 G/15
21 G/12	21 G/11	21 G/10

INDEX TO ADJOINING MAPS OF THE NATIONAL TOPOGRAPHIC SYSTEM

CANTERBURY

NSWICK

0 Échelle

2 3 Milles
2000 3000 4000 Mètres
2000 3000 4000 Verges

Information concerning location and precise elevation of bench marks can be obtained by writing to the Geodetic Survey, Surveys and Mapping Branch, Ottawa.

On peut obtenir des renseignements sur le lieu et l'altitude exacte des repères de nivellement en écrivant aux Levés géodésiques, Direction des levés et de la cartographie, Ottawa.

CONVERSION SCALE FOR ELEVATIONS

Metres 30 20 10 0 50 100 150 200 250 300 Mètres

Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 Pieds

ECHELLE DE CONVERSION DES ALTITUDES

CONTOUR INTERVAL 10 METRES
Elevations in Metres above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES 10 MÈTRES
Altitudes en Mètres
Système de référence géodésique nord américain 1927
Projection transverse de Mercator

Etabli par la DIRECTION DES LEVES ET DE LA CARTOGRAPHIE, MINISTERE DE L'ENERGIE, DES MINES ET DES RESSOURCES, à l'aide de photographies aériennes prises en 1974. Vérification des ouvrages en 1976. Publiée en 1981.

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Ministère de l'Énergie, des Mines et des Ressources

CANTERBURY
21 G/14
EDITION 2

PROVINCE DU NOUVEAU-BRUNSWICK

MINISTERE DES RESSOURCES NATURELLES

DIRECTION DES RESSOURCES MINIERES

PLANCHE 81-82

RESSOURCES GRANULAIRES

CANTERBURY

21G/14

PROVINCE OF NEW BRUNSWICK

DEPARTMENT OF NATURAL RESOURCES

MINERAL RESOURCES DIVISION

PLATE 81-82

GRANULAR RESOURCES of CANTERBURY

21G/14

ECHELLE 1:50,000 SCALE

Milles 1 0 1 2 3 Miles

Mètres 1000 0 1000 2000 3000 4000 Metres

DEPOTS

Alluvion (sable et gravier)

Epandage fluvio-glaciaire (surtout sable et gravier pouvant contenir des blocs et des galets)

Sédiments de contact glaciaire (sable et gravier; ordinairement stratifiés et pouvant contenir des blocs et des galets ainsi que des quantités variables de limon, d'argile ou de till)

Till d'ablation (ensemble plus ou moins compact de blocs, cailloux, sable, limon et argile en proportions variable; peut parfois inclure des zones de sable et gravier triés)

DEPOSITS

Alluvium (sand and gravel)

Glaciofluvial outwash (mainly sand and gravel; may contain cobbles and boulders)

Ice-contact deposits (mainly sand and gravel; usually stratified and may contain cobbles and boulders with varying amounts of silt, clay and/or till)

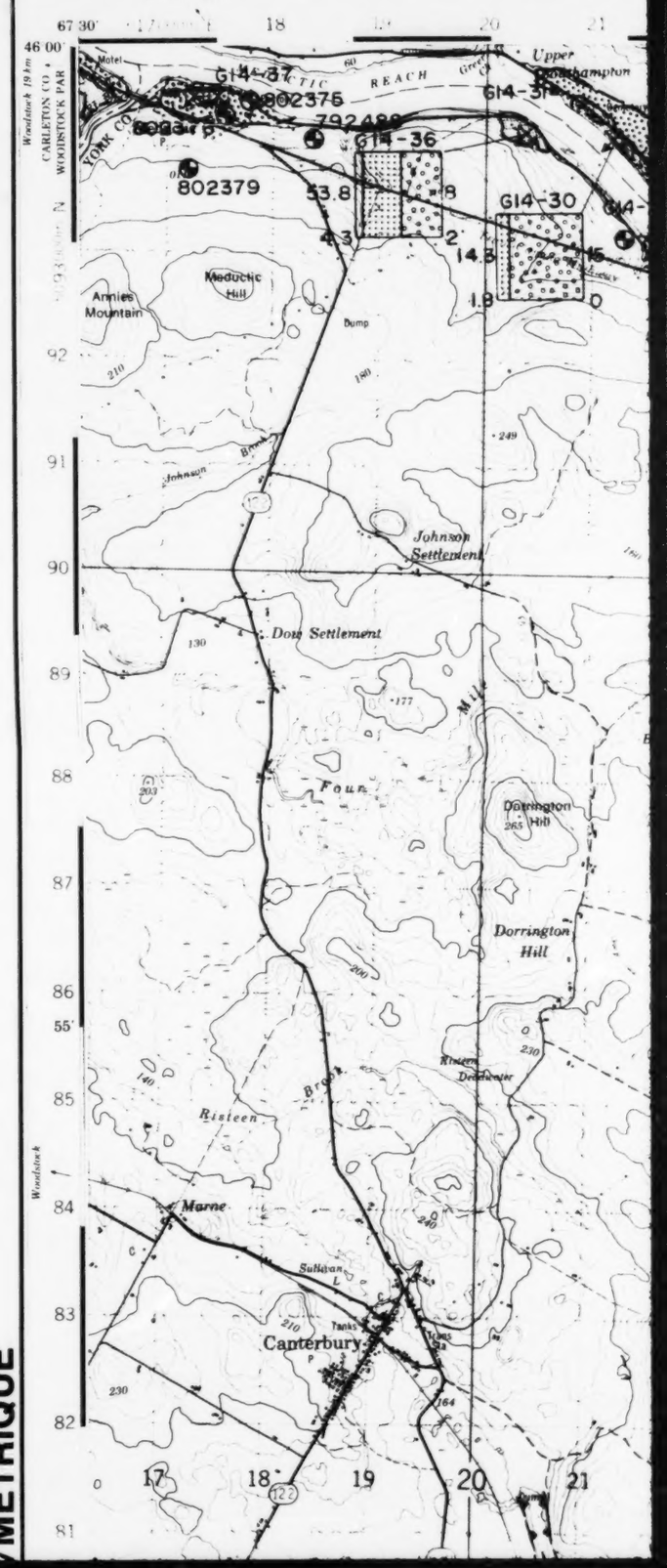
Ablation till (poorly to moderately compacted agglomeration of boulders, cobbles, pebbles, sand, silt and clay in varying proportions; may locally include pockets of sorted sand and gravel)

SYMBOLES

Contact géologique (approximatif, déduit)

SYMBOLS

Geological boundary (approximate, inferred)



MÉTRIQUE

METRIC

CANADA

G14-37
802375
792488
G14-36
802379
53.8
8
4.3
2
G14-30
14.3
15
1.8
0
G14-31
G14-29
792551
G14-28
G14-27
45.1
6
2.3
10
G14-26
56.0
4
2.2
28
G14-35
G14-33
792503
G14-34
37.0
12
1.5
12
G14-32
62.9
6
3.9
12
G14-14
53.4
5.5
1.7
26
G14-13
77.6
6
9.1
30
G14-20
38.9
7.2
G14-24
G14-25
G14-22
G14-21
1-3
32.7
10
0.3
6
G14-49
G14-50
G14-48
48.3
6.5
0.9
14
G14-47
FA

Upper Southampton
Dunham Hill
Nackawic
Cullins Cove
Shopping Centre
Arena
Trans Can Hwy
Motel
Armies Mountain
Moductic Hill
Bump
Temple
Middle Southampton
SOUTHAMPTON PARISH
CANTERBURY PARISH
SHOGOMOC REACH
MACTAQUAC
LAKE
SOUTHAMPTON
POKIOK REACH
Ritchie
Johnson Settlement
Johnson Brook
Sullivan
Doan Settlement
Four Mile Brook
Dorrington Hill (265)
Dorrington
Risteen Brook
Risteen
Marne
Sullivan L
Tanks
Canterbury
Camp Lake
Little Jamieson Lake
Blue Jamieson Lake
Inkaham Lake
Brown Lake
Doherty Pond
Indian Ripe
Lenna Pond
Moon Pond
Indian Lake
Blue Falls
Allandale
Houlehan
Pokiok
SHOGOMOC STREAM
Canoe Brook
Lenna Brook
SAGAMOC
Fox L
Brook
Woodstock 194 Rm
CARLETON CO. • WOODSTOCK PAR
YORK CO.

67 30 | 46 00 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81
17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 15 | 36 | 37 | 38

MÉTRIQUE

G14-27
45.1 6
2.3 10

G14-26
56.0 4
2.2 28

G14-14
53.4 5.5
1.7 26

G14-13
77.6 6
9.1 30

G14-20
38.9 9
7.2 18

G14-19
36.2 11
2.8 24

G14-11
57.9 4.5
3.4 12

G14-12

G14-10

G14-09

G14-33
792503

G14-24

G14-25

G14-23

G14-22

G14-21
1-3
32.7 10
0.3 6

G14-49

G14-34
37.0 12
1.5 12

G14-32
62.9 6
3.9 12

G14-18

G14-50

G14-48
48.3 6.5
0.9 14

G14-47

G14-46
79.4 8
5.3 14

792506

MACTAQUAC REACH

POKIOK REACH

SAINT JOHN RIVER

QUEENSBURY PARISH
DUMFRIES PARISH

Nackawic

Upper Queensbury

Southampton

Dumfries

Granite Hill

Davidson Lake

Allandale

Indian Lake

Brown Lake

Inkahant Lake

Doherty Pond

Long Pond

Moon Pond

Caltroit Pond

Charlie Lake

Deadwater

Day Hill

Parent Bog

String Bog

Rosboro Settlement

Pokiok Settlement

Shogomoc Stream

Pokiok Stream

Davidson Brook

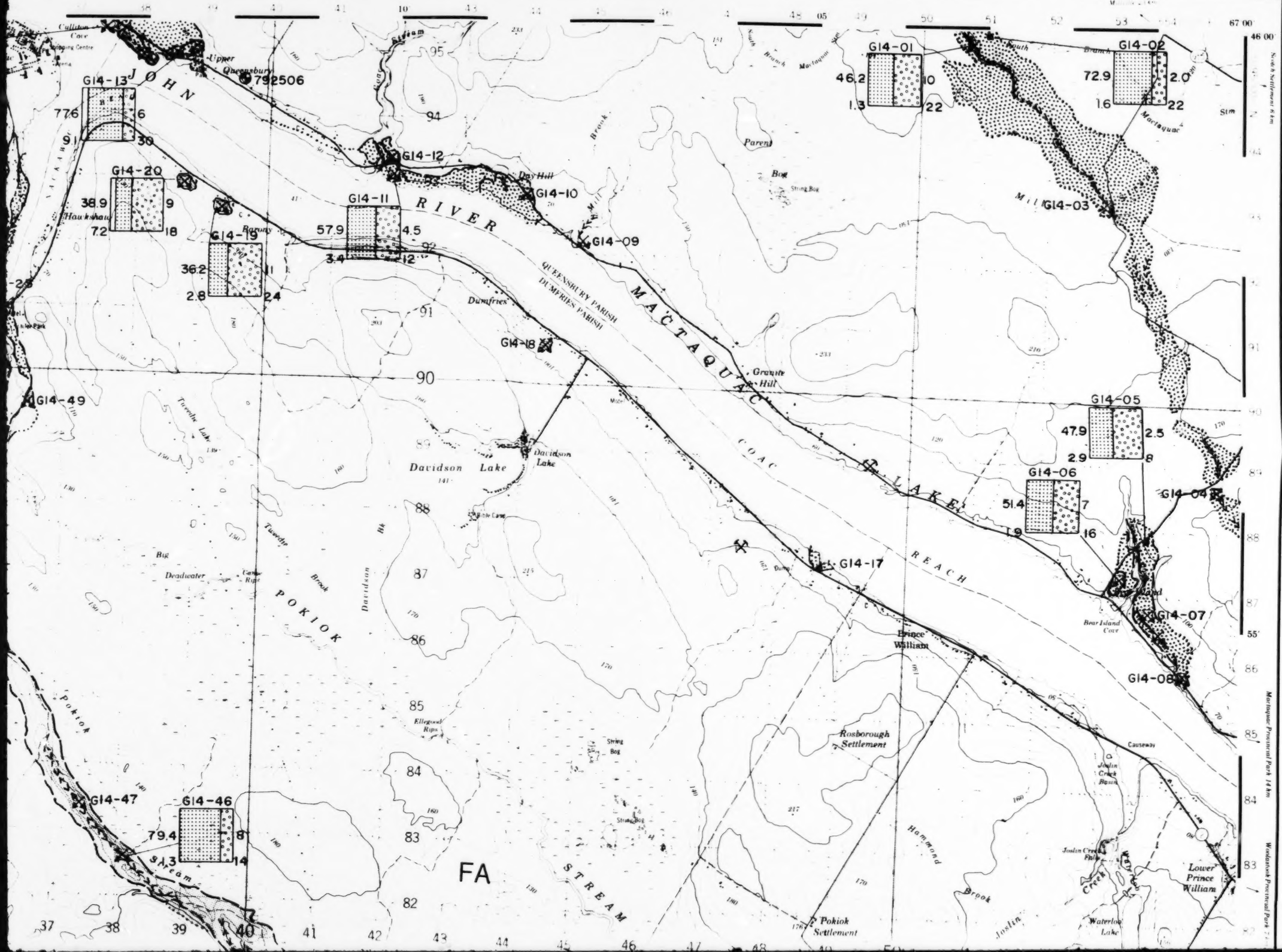
Brown Brook

Indian Brook

Canam Brook

Twerdie Brook

FA



Digital Mapping — Cartographie Numérique

GLOSSARY GLOSSAIRE

Airfield	Terrain d'aviation
Arena	Aréna
City Limits	Limites de ville
Customs	Douane
Elbow	Coude
Outpost	Abreuvoir
Quay	Débarcadère
Purification Plant	Usine de filtration
Quay	Quai
Golf Course	Terrain de golf
Junk Yard	Ferraille
Kiln	Four
Lookout	Belvédère
Mine Waste	Débris de mine
Oil Wells	Puits de pétrole
Park	Parc
Rink	Patinoire
Senior Citizens Home	Foyer de vieillards
Ski Area	Station de ski
String Bog	Tourbière à filaments
Surveyed Line	Ligne arpentée
Tank	Réservoir
Water	Eau
Winter Road	Chemin d'hiver

For a complete glossary see reverse side
Pour un glossaire complet voir au verso

ABBREVIATIONS ABRÉVIATIONS

Aband	Abandoned	Abandonné, ée
C	Cemetery	Cimetière
CO	County	Comté
E	Elevator	Elevateur
Fy	Ferry	Traversier
IR	Indian Reserve	Réserve indienne
H	Hospital	Hôpital
L	Lot	Lot
Micro	Microwave	Micro ondes
Mun	Municipality	Municipalité
P	Post Office	Bureau de poste
PH	Power House	Centrale électrique
RCMP	Royal Canadian Mounted Police	Gendarmerie Royale Canadienne
Res	Reservoir	Réservoir
Trans Sta	Transformer Station	Poste de transformateurs
TFL	Tree Farm Licence	Licence de sylviculture

METRIC/M

DEPOTS

Alluvion (sable et gravier)

Epandage fluvio-glaciaire (surtout sable et gravier pouvant contenir des blocs et des galets)

Sédiments de contact glaciaire (sable et gravier; ordinairement stratifiés et pouvant contenir des blocs et des galets ainsi que des quantités variables de limon, d'argile ou de till)

Till d'ablation (ensemble plus ou moins compact de blocs, cailloux, sable, limon et argile en proportions variable; peut parfois inclure des zones de sable et gravier triés)

SYMBOLES

Contact géologique (approximatif, déduit)

Subdivision du dépôt (pour calcul de réserve)

Escarpement (hachures indiquent la pente)

Esker (direction probable d'écoulement)

Esker (direction d'écoulement inconnue)

Important chenal de fonte glaciaire (avec la direction probable d'écoulement)

Petit chenal de fonte glaciaire (avec la direction probable d'écoulement)

Gravière, banc d'emprunt

Site d'échantillonage (autre que gravière)

Carrière

Emplacement et numéro de série; données de forage de puits (obtenues du Ministère de l'Environnement, faisant référence à du sable et/ou à du gravier

Numéro d'identification du site (voir le profil de l'échantillon ou les notes en appendice)

DEPOSITS

Alluvium (sand and gravel)

Glaciofluvial outwash (mainly sand and gravel; may contain cobbles and boulders)

Ice-contact deposits (mainly sand and gravel; usually stratified and may contain cobbles and boulders with varying amounts of silt, clay and/or till)

Ablation till (poorly to moderately compacted agglomeration of boulders, cobbles, pebbles, sand, silt and clay in varying proportions; may locally include pockets of sorted sand and gravel)

SYMBOLS

Geological boundary (approximate, inferred)

Deposit subdivision boundary (for reserve calculation)

Terrace scarp (hachures on slope)

Esker (probable flow direction)

Esker (flow direction unknown)

Large glacial drainage channel (with probable flow direction - usually has discontinuous veneer / blanket of granular material)

Small glacial drainage channel (with probable flow direction)

Gravel pit, borrow pit

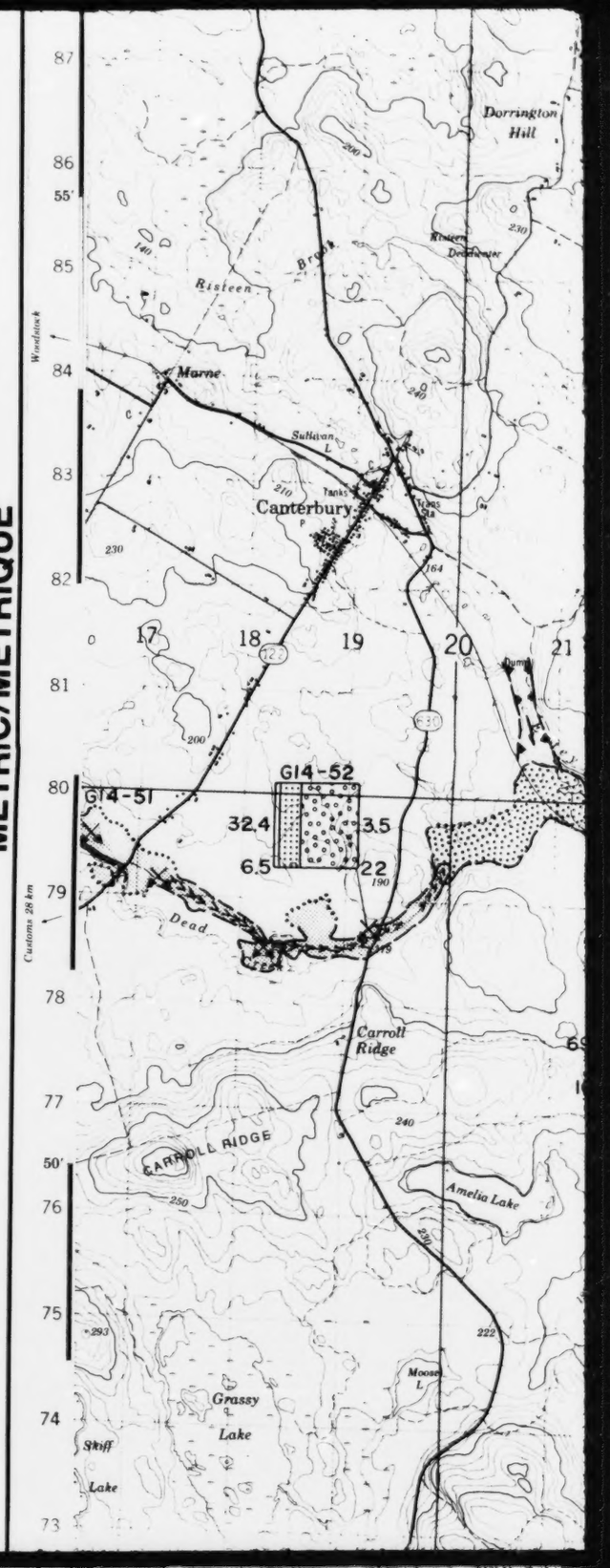
Location other than gravel pit

Bedrock quarry, borrow pit in weathered or broken rock

772276 Location and serial number: water well data (available from Dept. of Environment) with reference to sand and/or gravel in drillers' log description

J14-27 Site description number - see grading diagram and/or notes in appendix

METRIC/MÉTRIQUE



gravel ; may contain
ders)

gravel; usually stratified
obbles and boulders with
f silt, clay and/or till)

ompacted agglomeration
bles, sand, silt and clay
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and gravel)

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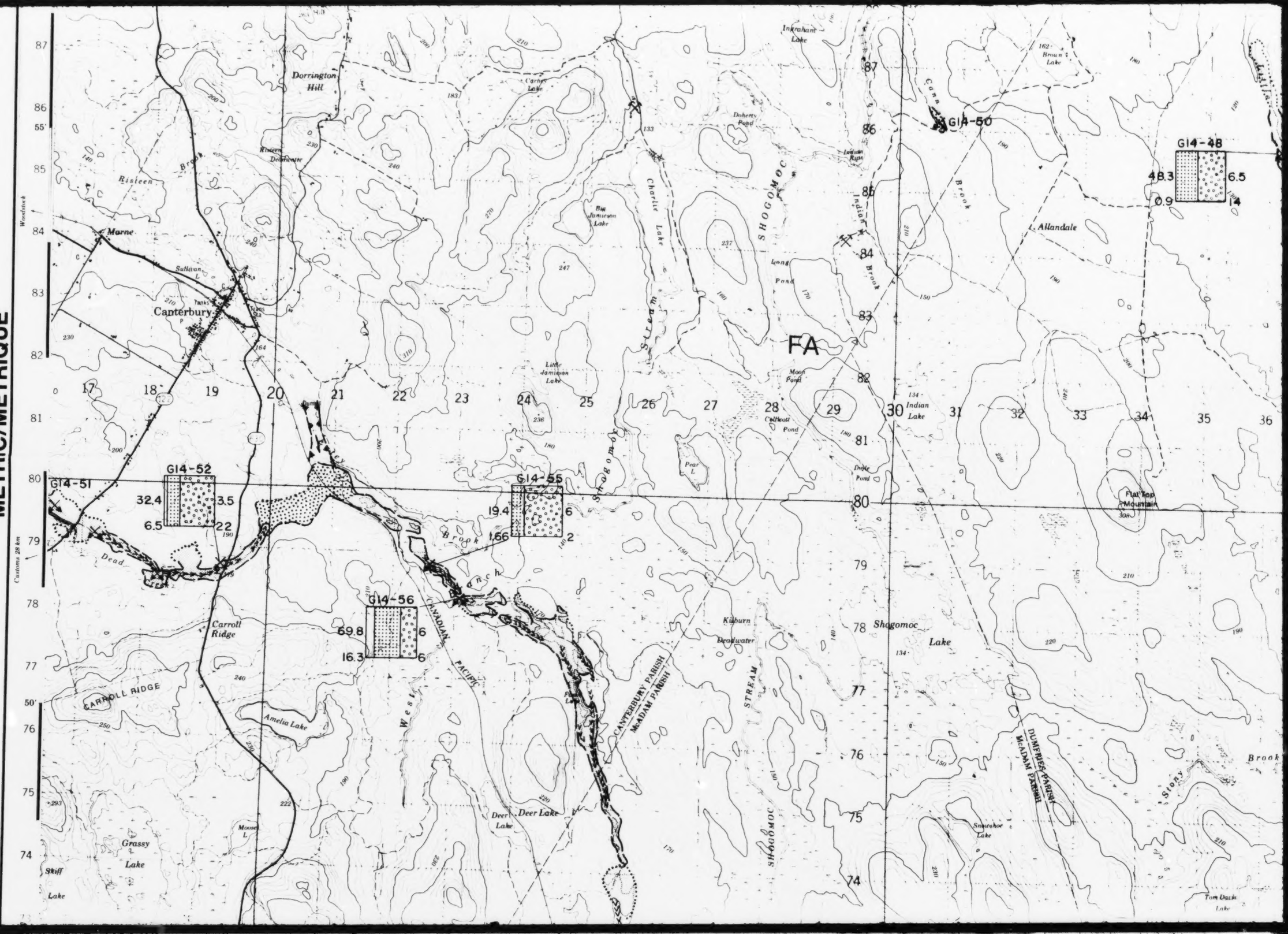
robable flow
n)

or broken rock

data (available from
and and/or gravel

iagram and/or

METRIC/MÉTRIQUE



G14-50
G14-48
48.3
6.5
0.9
14
G14-47
G14-46
79.4
8
14
G14-45
G14-44
7.1
1.5
G14-43
G14-17
G14-15
G14-16
5.8
3.5
10.7
16
FA
FA
Inkwhaam Lake
Doherty Pond
Indian Rips
Indian Brook
Long Pond
Moon Pond
Caldwell Pond
Drake Pond
Indian Lake
Allandale
Flat Top Mountain
Kilburn Headwater
Shogomoc Lake
Snowshoe Lake
Tom Davis Lake
Lily Lake
Mud Lake
Clear L.
Bible Camp
Deadwater
Ellegood Rips
String Bog
Rosborough Settlement
Pokiok Settlement
Magundy Hill
Magundy
Cemetery
Pokiok Ridge
LAKE GEORGE PROV PARK
SHOGOMOC STREAM
POKIOK STREAM
Meadow Brook
Stony Brook
Little Magundy Brook
Mud Brook
DUMFRIES PARISH
McADAM PARISH
PRINCE WILLIAM PARISH

METRIC/MÉTRIQUE

M	Municipal	M	Municipale
Mun	Municipality	Mun	Municipalité
P	Post Office	B	Bureau de poste
PH	Power House	CE	Centrale électrique
RCMP	Royal Canadian Mounted Police	GRC	Gendarmerie Royale Canadienne
Res	Reservoir	Res	Réservoir
Trans Sta	Transformer Station	PT	Poste de transformateurs
TFL	Tree Farm Licence		Licence de sylviculture

ONE THOUSAND METRE
ZONE 13
QUADRILLAGE DE MILLE MÈTRES

Miramichi Provincial Park 14 km

Woodstock Provincial Park 7 km

Deadwater
Big
Tweedie Brook
POKIOK STREAM
Davidson Bk
Pokiok
Ellegood Rips
String Bog
Rosborough Settlement
Pokiok Settlement
Hammond Brook
Joslin Creek Falls
Joslin Creek Basin
Causeway
Bear Island Cove
Prince William
Lower Prince William
Waterloo Lake
Joslin Brook
Kent Bk
Beaver Brook
Mud Lake
Clear L
Meadow Brook
Little Magaguadavic Lake
Magundy Hill
Magundy
Cemetery
Lake George
Settling Pond
Trailer Park
Donnelly Settlement
LAKE GEORGE
LAKE GEORGE PROV PARK
RIDGE
DUMFRIES PRINCE WILLIAM PARISH
FA
G14-47
G14-46
G14-45
G14-44
G14-43
G14-42
G14-17
G14-15
G14-16
G14-07
G14-08
79.4
51.3
7.1
1.5
5.8
10.7
3.5
800935

Escarpement (hachures indiquent la pente)

Esker (direction probable d'écoulement)

Esker (direction d'écoulement inconnue)

Terrace scarp (hachures on slope)

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772276

Location and serial number: water well data (available from Dept. of Environment) with reference to sand and/or gravel in drillers' log description

Numéro d'identification du site (voir le profil de l'échantillon ou les notes en appendice)

J14-27

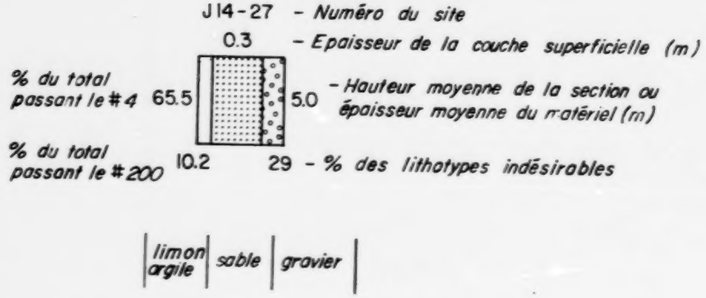
Site description number - see grading diagram and/or notes in appendix

Information non disponsible

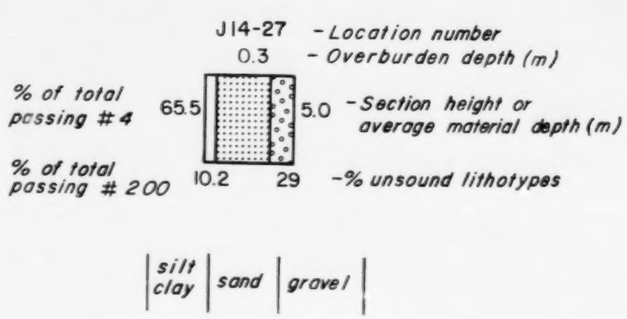
N.A.

Not available

PROFIL DE L'ECHANTILLON


J14-27 - Numéro du site
0.3 - Epaisseur de la couche superficielle (m)
% du total passant le #4
65.5
5.0 - Hauteur moyenne de la section ou épaisseur moyenne du matériel (m)
% du total passant le #200
10.2
29 - % des lithotypes indésirables
limon argile
sable
gravier

GRADING DIAGRAM



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GEOCON INC.

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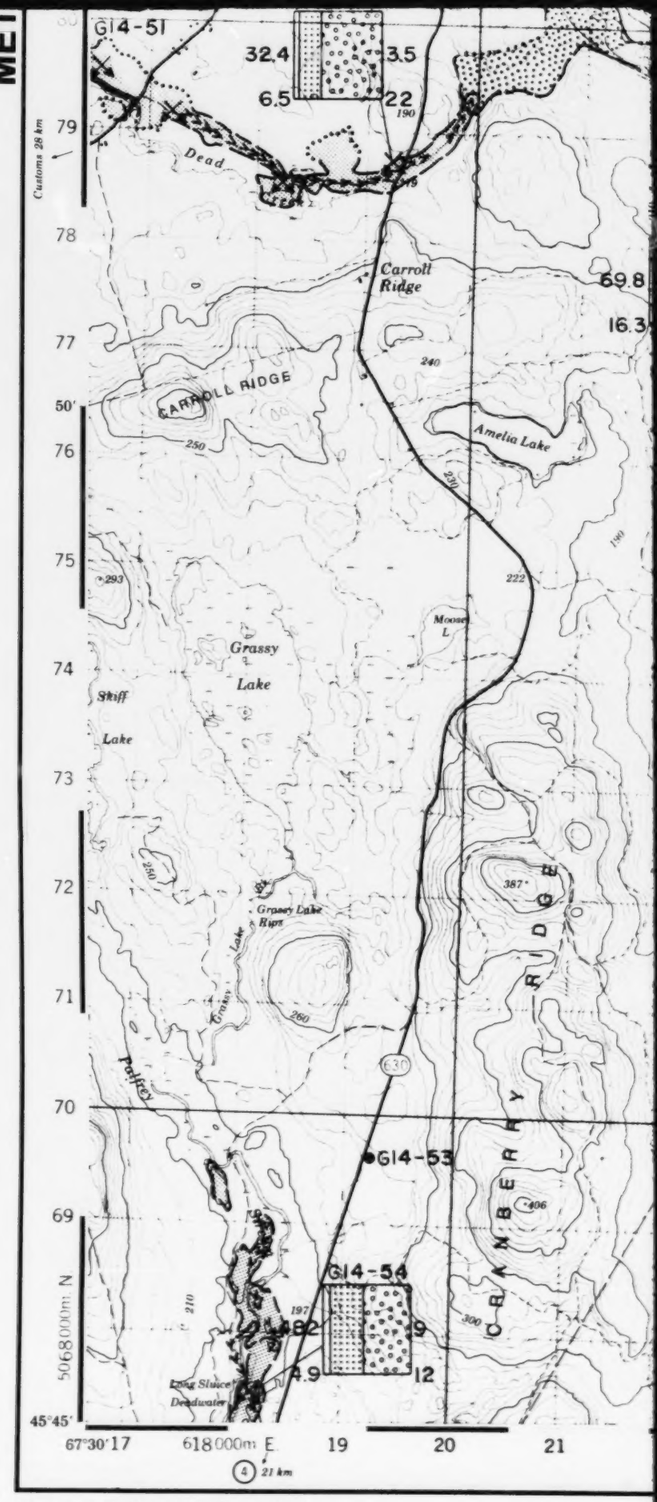

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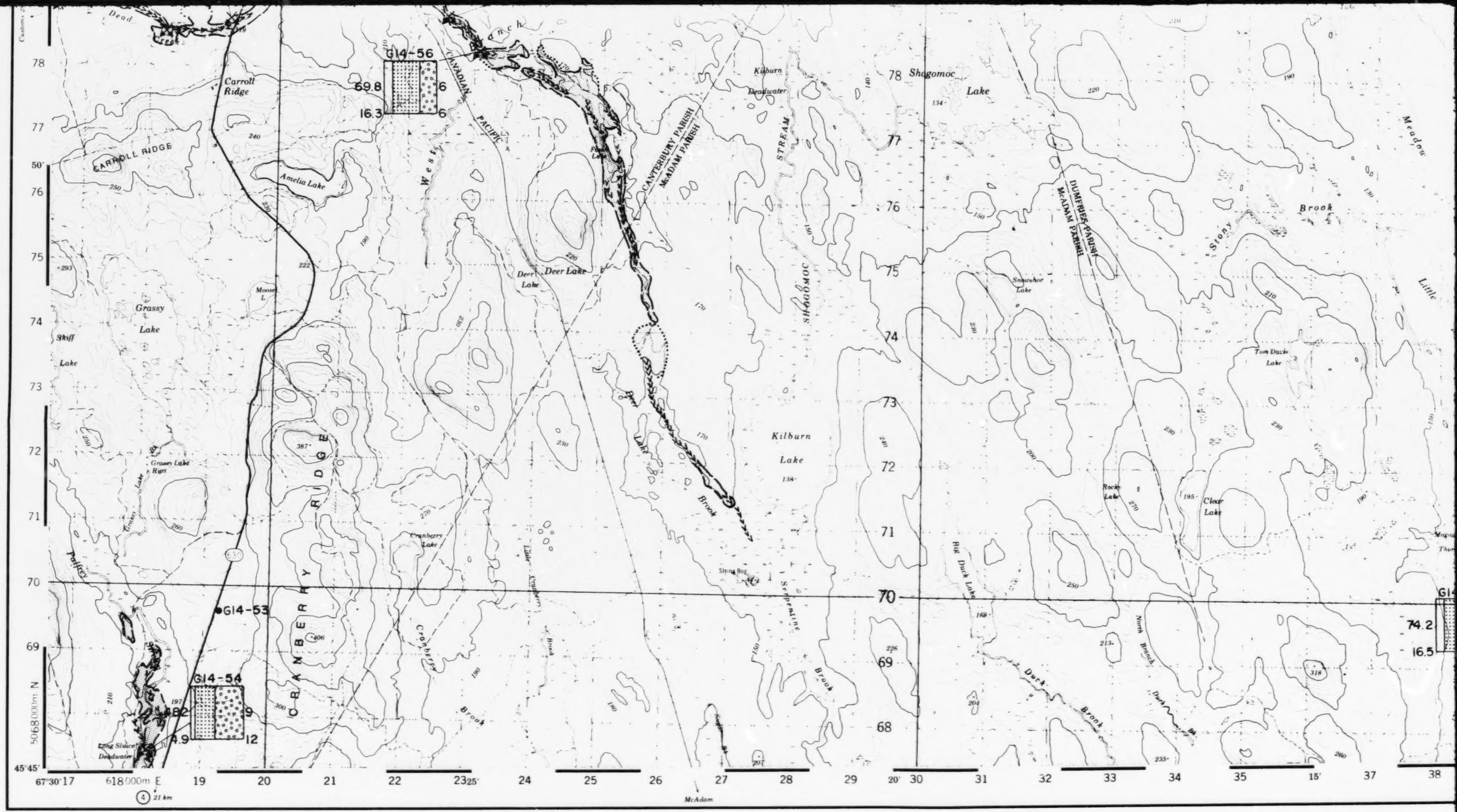

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Roads	Routes
hard surface, all weather	pavée, toute saison
hard surface, all weather	pavée, toute saison
loose or stabilized surface, all weather	gravier, agglomeré, toute saison
loose surface, dry weather	de gravier, temps sec
unclassified streets	rues hors classe
cart track	de terre
trail, cut line or portage	sentier, percée ou portage

dual highway: 2 chaussées séparées — more than 2 lanes: plus de 2 voies
2 lanes: 2 voies — less than 2 lanes: moins de 2 voies
2 lanes or more: 2 voies ou plus — less than 2 lanes: moins de 2 voies

FOR COMPLETE REFERENCE SEE REVERSE SIDE POUR LIRE A... VOIR AU VERSO

CANTERBURY
NEW BRUNSWICK

Scale 1:50 000 Échelle

Miles 1 — 0 — 1 — 2
Metres 1000 — 0 — 1000 — 2000 — 3000
Yards 1000 — 0 — 1000 — 2000 — 3000 — 4000

CANTERBURY
NEW BRUNSWICK

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Mètres

Yards 1000 0 1000 2000 3000 4000 Verges

Routes

weather	pavée, toute saison	dual highway, 2 chaussées séparées — more than 2 lanes, plus de 2 voies
weather	pavée, toute saison	2 lanes, 2 voies — less than 2 lanes, moins de 2 voies
d surface, all weather	gravier, agglomère, toute saison	2 lanes or more, 2 voies ou plus — less than 2 lanes, moins de 2 voies
y weather	de gravier, temps sec	
eets	rues hors classe	
	de terre	
ortage	sentier, percée ou portage	

ETE REFERENCE SEE REVERSE SIDE POUR UNE A... VOIR AU VERSO

Information concerning location and precise elevation of bench marks can be obtained by writing to the Geodetic Survey, Surveys and Mapping Branch, Ottawa

On peut obtenir des renseignements sur le lieu et l'altitude exacte des repères de nivellement en écrivant aux Leves geodesiques, Direction des leves et de la cartographie, Ottawa

CONVERSION SCALE FOR ELEVATIONS

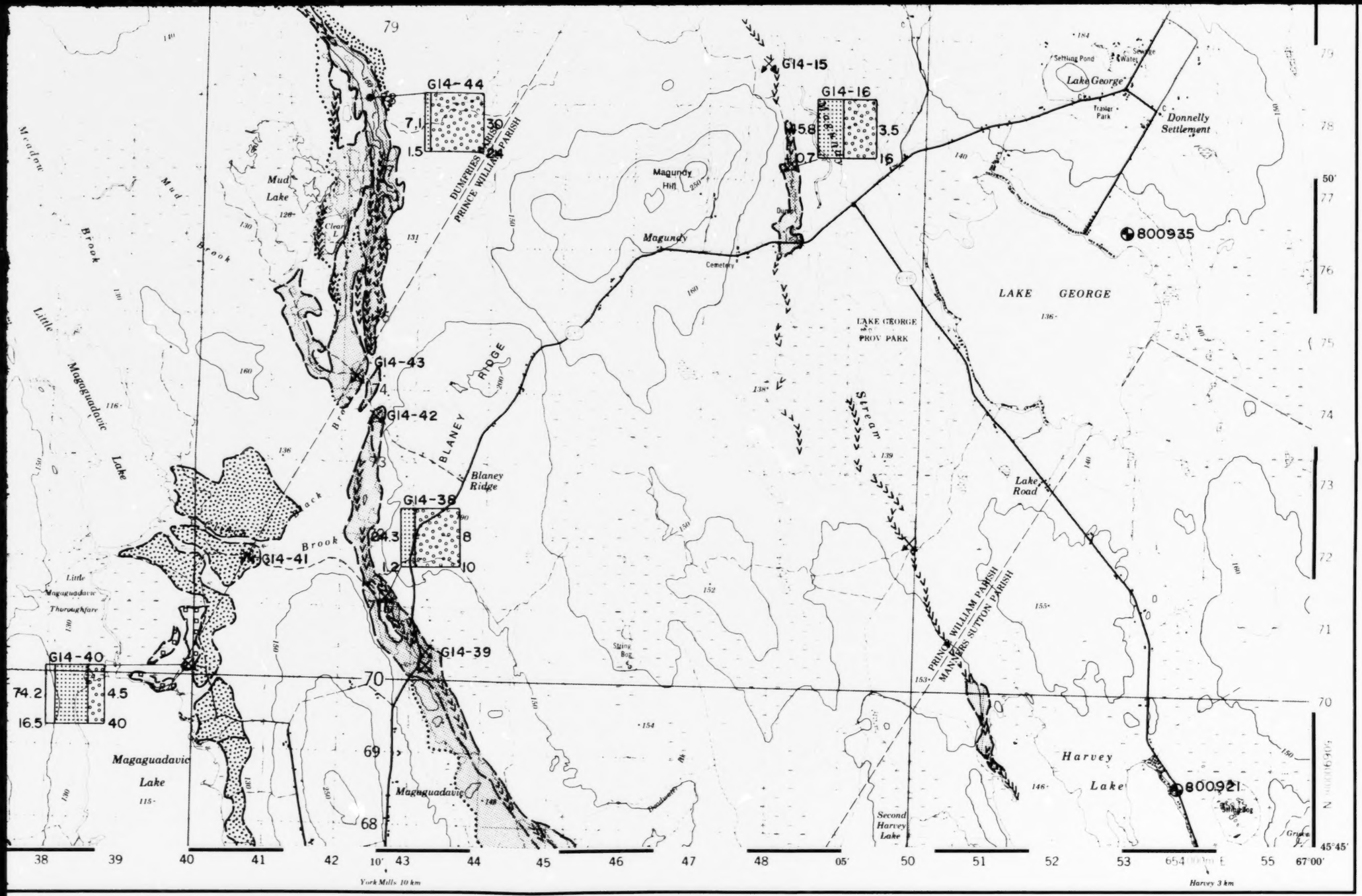
ÉCHELLE DE CONVERSION DES ALTITUDES

Metres 30 20 10 0 50 100 150 200 250 300 Mètres

Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 Pieds

CONTOUR INTERVAL 10 METRES
Elevations in Metres above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES 10 MÈTRES
Altitudes en Mètres
Système de référence géodésique nord-américain, 1927
Projection transverse de Mercator



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CONVERSION SCALE FOR ELEVATIONS

Metres 30 20 10 0 50 100 150 200 250 300 Mètres

Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 Pieds

ÉCHELLE DE CONVERSION DES ALTITUDES

2 3 Milles

4000 Mètres

4000 Verges

CONTOUR INTERVAL 10 METRES

Elevations in Metres above Mean Sea Level

North American Datum 1927

Transverse Mercator Projection

ÉQUIDISTANCE DES COURBES 10 MÈTRES

Altitudes en Mètres

Système de référence geodésique nord-américain, 1927

Projection transverse de Mercator

Établie par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES, à l'aide de photographies aériennes prises en 1974. Vérification des ouvrages en 1976. Publiée en 1981

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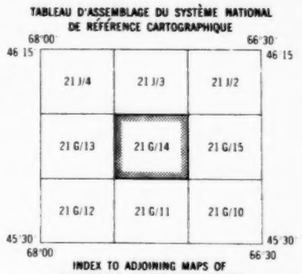
TABLEAU D'ASSEMBLAGE DU SYSTÈME NATIONAL DE RÉFÉRENCE CARTOGRAPHIQUE



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